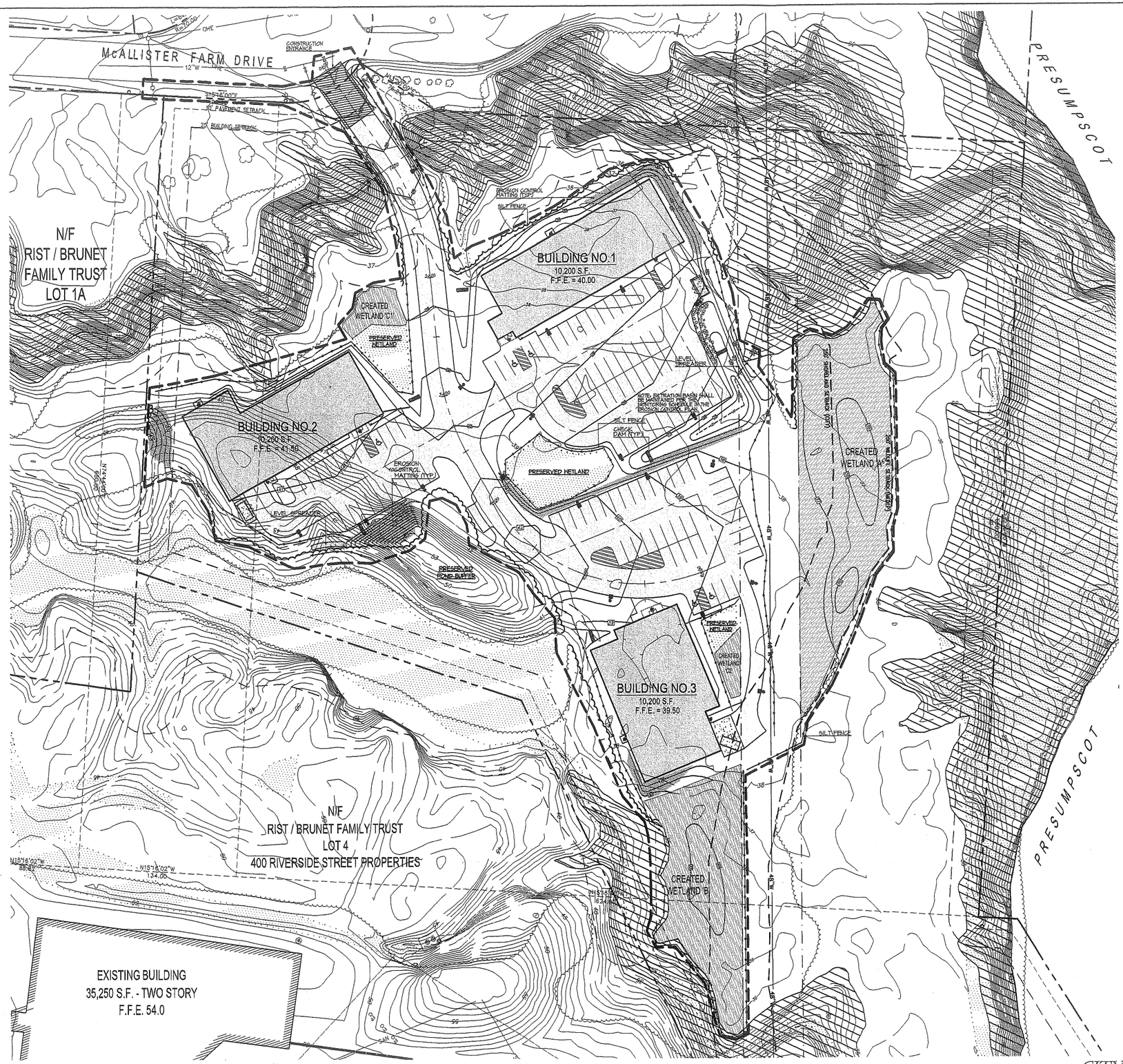
320 A 2

400 - 400 Riverside St

Riverside St

Riverside properties



GRADING, DRAINAGE AND UTILITIES NOTES:

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4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.
5. LEVEL LIP SPREADERS SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
6. OWNER AND LANDSCAPE ARCHITECT WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PERFORM FINISH WORK AS DIRECTED BY THE OWNER OR LANDSCAPE ARCHITECT TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.
7. ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE MOST RECENT EDITION OF CITY OF PORTLAND'S TECHNICAL GUIDELINES AND STANDARDS.

CREATED WETLAND AREAS:

WETLAND AREA 'A' =	19,025 SQUARE FEET
WETLAND AREA 'B' =	11,220 SQUARE FEET
WETLAND AREA 'C1' =	1,360 SQUARE FEET
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TOTAL	32,393 SQUARE FEET

LEGEND

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UTILITY POLE		LIMIT OF WORK	
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MOIR & SEREDIN
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LOT 6 -- McALLISTER FARM SUBDIVISION

McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Grading, Drainage, Erosion Control Plan

No.	Date	Revision
1	3.3.05	PUR DEP COMMENTS
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3	4.26.05	Site Plan Submission
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Job # 566
Date: 18 Jan. 05
Scale: 1" = 40'
Drawn: MK
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Dwg. No. L3.0

EROSION AND SEDIMENTATION CONTROL PLAN

INTRODUCTION

The following plan for controlling sedimentation and erosion in this project is based on conservation practices found in the Maine Erosion & Sediment Control BMPS Manual, Maine Department of Environmental Protection, March 2003, or latest edition. The contractor who implements this plan shall be familiar with this publication and adhere to it and the practices presented herein.

The project site is located at Lot 6, McAlister Farm Drive in Portland, Maine. The property is 12.6 acres in size and proposed development on the site consists of an entry drive, parking for 55 cars, and one 10,000 square foot office and warehouse facility.

The portion of the site to be developed consists of approximately 4 acres, and is adjacent to the southern shore of the Presumpscot River. Slopes range 1% to 3% in the portion of the site to be developed, with steeper slopes (15% to 30%) adjacent to the river. Soils on-site are mapped as Scantic by the SCS Medium Intensity Soils Survey for Cumberland County.

Reference is made to the erosion control plan (L3.0), showing the locations and types of proposed erosion control measures contained in this report.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES

The following is a list of general erosion control practices that will be used to prevent erosion and sedimentation before, during and after the construction of this project. In addition, special care shall be used at all times to:

1. Limit disturbance and, hence, erosion,
2. Correct any erosion problems immediately,
3. Regularly monitor the implemented practices, especially after every rainfall,
4. Revegetate disturbed areas as soon as possible after construction.

Stone Check Dams
Stone check dams will be installed as shown on the plans. These check dams reduce flow velocities in swales and serve to filter and capture sediment before traveling downstream.

Swales (Vegetated Drainageway)
Grass-line swales will collect runoff from the site. To supplement grass-lines swales in steeper areas, or where there is high discharge or sediment load potential, either rip-rap or soft armour lining will be used to supplement the vegetation. Rip-rap will provide a higher level of filtration and will slow the flow.

Level Lip Spreaders
Level spreaders will be used to collect runoff from swales and convert it to sheet flow across existing vegetated areas. The level lip will be at existing undisturbed grade and will be reinforced with either rip-rap or soft armour matting.

Haybales and or Silt Fence
As noted on the plans, haybales and/or silt fencing is installed at the toe of slopes near wetlands, below any dike construction (out of receiving channels) along the more expansive fill slopes, and at the toe of cleared slopes.

Construction Entrance
A crushed stone construction entrance shall be installed where the construction equipment will be entering the site. The location and details for the entrance are noted on the plans.

CONSTRUCTION PHASE

The following general practices will be implemented to prevent erosion during construction on this project:

1. Only those areas under active construction will be cleared and left in an untreated or unvegetated condition. Once construction of an area is complete, final grading, loaming and seeding shall occur immediately (refer to "Post Construction Revegetation" section). If final grading, loaming and seeding can not occur immediately, it shall be done prior to any storm event and within 15 days of completing construction in the area (within 7 days at stream crossings). If final grading, loaming and seeding cannot occur within 15 days, or if the area is not under active construction for a period longer than 15 days, see Item No. 5 below.

2. Prior to the start of construction in a specific area, silt fencing and or haybales will be installed as shown on the plans, at the toe of slope and in areas as located on the plans to protect against any construction related erosion. Immediately following construction of swales, additional stone check dams shall be installed, as shown on the plans.

3. Topsoil will be stockpiled when necessary in areas which have minimum potential for erosion and will be kept as far as possible from existing drainage areas and wetlands. All stockpiles expected to remain longer than 15 days shall be :

A. Treated with anchored mulch (within 5 days of the last deposit of stockpiled soil).

B. Seeded with conservation mix and mulched immediately.

Stockpiles expected to remain longer than 3 days shall be encircled with haybales or silt fence at the toe of the pile.

4. All disturbed areas expected to remain longer than 15 days shall be:

A. Treated with straw at a rate of 70-90 lbs. per 1000 square feet from 4/14 to 10/1, or at a rate of 150-200 lbs. per 1000 square feet from 10/1 to 4/15.

B. Seeded with conservation mix of perennial rye grass (1.0 lbs/1000 sq.ft.) and mulched immediately.

C. Monitored every two weeks until seeding can occur and remulched as needed to protect slopes.

5. All grading will be held to a maximum 3:1 slope where practical, except as shown on the plan. Greater slopes may be used where the banks are protected with soft armour matting, erosion control matting, or riprap. All slopes will be stabilized with permanent seeding immediately after final grading is complete. (It is understood that immediately means within 5 days of the completion of work. See Post-Construction revegetation for seeding specification.)

6. Swales will be rock lined or soft armour matted where excessive flows or velocities might occur. The locations of these swales are noted on the plans.

7. Construction traffic will be directed over the construction entrance and existing and proposed driveway. Any areas subject to rutting will be stabilized immediately. The crushed stone construction entrance shall be maintained by the addition of more crushed stone as needed as the voids become filled.

POST CONSTRUCTION REVEGETATION

The following general practices will be implemented to prevent erosion as soon as an area is ready to undergo final grading:

1. A minimum of 4" of loam will be spread over disturbed areas and graded to a uniform depth and natural appearance.

2. If final grading is accomplished during the normal growing season (4/15 to 10/1), permanent seeding will be done as specified below. Prior to seeding, limestone shall be applied at a rate of 100 lbs/1000 sq. ft. and 10:20:20 fertilizer at a rate of 18.4 lbs/1000 sq. ft. will be applied. Broadcast seeding at the following rates:

White Clover 0.46 lbs/1000 sf
Sheep Fescue 0.80 lbs/1000 sf
Annual Ryegrass 0.69 lbs/1000 sf

If permanent seeding areas that have received winter mulching, the top two inches of winter mulching should be removed.

3. An area shall be mulched immediately after it has been seeded. Mulching shall consist of hay mulch, hydro-mulch or any suitable substitute deemed acceptable by the Design Professional.

A. Hay mulch shall be applied at the rate of 2 tons per acre. Hay mulch shall be secured by one of the following:
Drive over with tracked construction equipment on grades of 5% and less.
Blanket with tacked photodegradable/biodegradable netting on grades greater than 5%.

B. Hydro-mulch shall consist of a mixture of asphalt, wood fibre or paper fibre and water which is sprayed over a seeded area. Hydro-mulch shall not be used between 10/1 and 4/15.

4. Construction shall be planned to eliminate the need for seeding between October 1st and April 15th. Should construction be necessary between these dates, following the WINTER CONSTRUCTION erosion control plan and standards as outlined below.

5. Where erosion control netting is called for in swales, the swale may be either:

A. Seeded, mulched, and blanketed with photodegradable/biodegradable netting.

B. Seeded and blanketed with netting containing excelsior, or with soft armour matting as noted on the plans.

All netting shall be anchored as per the Manufacturer's specs.

6. Following final seeding, the site will be inspected every 30 days until 80% cover has been established. Reseeding will be carried out by the contractor within 10 days of notification by the design professional that the existing catch is inadequate.

MONITORING SCHEDULE

The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and removing all of the erosion and sedimentation controls or appointing a qualified subcontractor to do so.

Maintenance measures will be applied as needed during the entire construction cycle. Immediately following any significant rainfall, and at least once a week, a visual inspection will be made of all erosion and sedimentation controls as follows:

1. Haybale barriers and silt fence shall be inspected and repaired. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6" and redistributed to areas undergoing final grading. Should the haybale barriers prove to be ineffective, the contractor shall install silt fence behind the haybales.

2. Stone check dams and level lip spreaders shall be visually inspected and repaired as needed. Sediment trapped behind these devices shall be removed once it attains a depth equal to ½ the height of the dam or riser. The sediment removed shall be distributed off-site or to an area undergoing final grading. The sediment and the removal thereof shall be handled in a manner that does not promote erosion or sedimentation.

3. Construction entrance shall be visually inspected and repaired as needed. Any areas subject to rutting shall be stabilized immediately. If the voids of the construction entrance become filled with mud, more crushed stone shall be added as needed. Any mud soil tracked onto the 390-400 common driveway shall be swept immediately and distributed back onto the site.

4. Maintenance of Filtration Basin: All sediment shall be removed from filtration basin at on or around April 1 each spring. After every major storm event, the filtration basin shall be inspected. At that time, eroded and or unstable area of the basin shall be repaired and all sediment shall be removed from the basin. All maintenance of the filtration basin shall conform with the most recent Maine DEP water quality standards and guideline (Chapter 500.)

EROSION CONTROL REMOVAL

An area is considered stable if it is paved or if 80% growth of planted seeds are established. Once an area is considered stable, the erosion control measures can be removed as follows:

1. Haybales and Silt Fence
The haybales and silt fence shall be disposed of legally and properly off-site. All sediment trapped behind these controls shall be distributed to an area undergoing final grading or removed and relocated off-site.

2. Stone Check Dams
The sediment trapped behind/around in stone check dams, shall be removed and relocated off-site or to an area undergoing final grading. The sediment trapped by these devices shall not be regraded locally since they exist in drainage ways. The rip-rap from the check dams and risers may be either:

A. Removed or,

B. Regraded in an aesthetic manner, which does not inhibit flow or create erosion.

3. Miscellaneous
Once all the trapped sediments have been removed from the temporary sedimentation devices (stone check dams), the disturbed areas must be regraded in an aesthetic manner to conform to the surrounding topography. Once graded these disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

The above erosion controls must be removed within 30 days of final stabilization of the site.

Conformance with this plan, and following these practices will result in a project that complies with the State Regulations and the Standards of the Natural Resources Protection Act, and will protect water quality in areas downstream from the project.

WINTER CONSTRUCTION

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75 % mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All area shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. SOIL STOCKPILES

Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs 1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. NATURAL RESOURCES PROTECTION

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75 % mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats.

During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.

Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. SEDIMENT BARRIERS

During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. MULCHING

All area shall be considered to be denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs/1,000 s.f. or 1.5 tons/acre) and shall be properly anchored.

Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, asphalt emulsion chemical, track or wood cellulose fiber. When ground surface is not visible though the mulch then cover is sufficient.

After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading work day.

5. MULCHING ON SLOPES AND DITCHES

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets.

Mulching shall be applied at a rate of 230 lbs/1,000 sft on all slopes greater than 8 %.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater that 3 % for slopes exposed to direct winds and for all other slopes greater that 8 %.

Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes 8 %.

Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. SEEDING

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples.

If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas sufficiently vegetated (less than 75 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

7. TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION

Water from construction trench dewatering or temporary stream diversion will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 100 feet of a protected natural resource.

8. INSPECTION AND MONITORING

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.

Following the temporary and or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/ or unestablished spots. Established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. Standard for the timely stabilization of ditches and channels -- The applicant will construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant will construct and stabilize all grass-lined ditches and channels on the site by September 15. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 15, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant will line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant will line the ditch with stone riprap by November 15. The applicant will hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant will construct and stabilize stone-covered slopes by November 15. The applicant will seed and mulch all slopes to be vegetated by September 15. The department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 15, then the applicant will take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By October 1 the applicant will seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant will cover the slope with a layer of woodwaste compost as described in item iii of this condition or with stone riprap as described in item iv of this condition.

Stabilize the slope with sod -- The applicant will stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant will not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant will place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant will remove any snow accumulation on the disturbed slope. The applicant will not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant will place a layer of stone riprap on the slope by November 15. The applicant will hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant will seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant will take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By October 1 the applicant will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant will monitor growth of the rye over the next 30 days. If the rye fails grow at least three inches or cover at least 75% of the disturbed soil before November 15, then the applicant will mulch the area for over-winter protection as described in item iii of this standard.

Stabilize the soil with sod -- The applicant will stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch -- By November 15 the applicant will mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant will remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

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LOT 6 -- McALLISTER FARM SUBDIVISION
McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Erosion
Control Notes

No.	Date	Revision
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Job # 566 | Dwg. No. L3.1
Date: 18 Jan. 05
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CITY OF PORTLAND: SITE PLAN SUBMISSION

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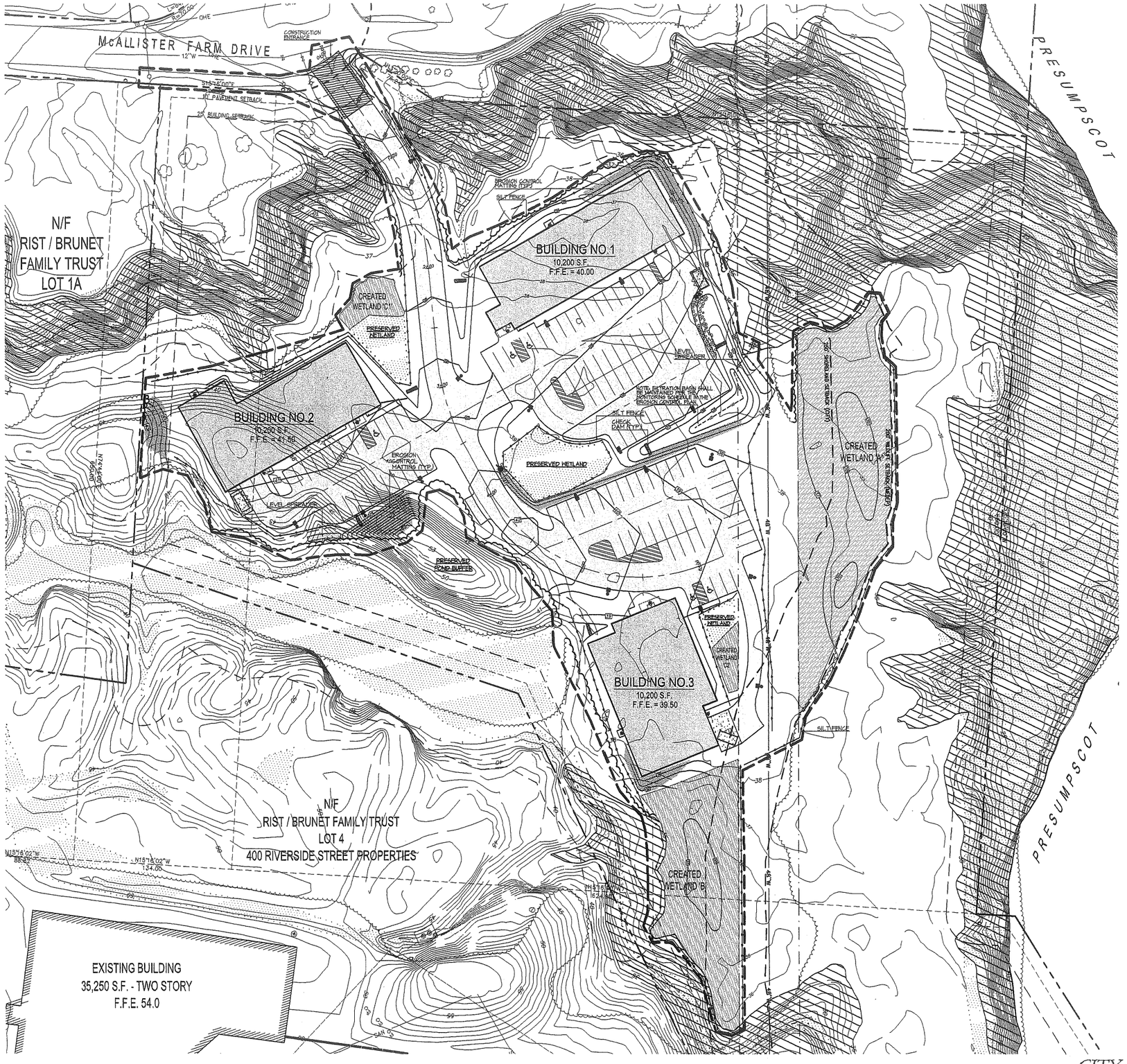

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GRAPHIC SCALE
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The portion of the site to be developed consists of approximately 4 acres, and is adjacent to the southern shore of the Presumpscot River. Slopes range 15% to 3% in the portion of the site to be developed, with steeper slopes (15% to 30%) adjacent to the river. Soils on-site are mapped as Scantic by the SCS Medium Intensity Soils Survey for Cumberland County.

Reference is made to the erosion control plan (L3.0), showing the locations and types of proposed erosion control measures contained in this report.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES

The following is a list of general erosion control practices that will be used to prevent erosion and sedimentation before, during and after the construction of this project. In addition, special care shall be used at all times to:

1. Limit disturbance and, hence, erosion,
2. Correct any erosion problems immediately,
3. Regularly monitor the implemented practices, especially after every rainfall,
4. Revegetate disturbed areas as soon as possible after construction.

Stone-Check Dams
Stone check dams will be installed as shown on the plans. These check dams reduce flow velocities in swales and serve to filter and capture sediment before traveling downstream.

Swales (Vegetated Drainageway)
Grass-line swales will collect runoff from the site. To supplement grass-lines swales in steeper areas, or where there is high discharge or sediment load potential, either rip-rap or soft armour lining will be used to supplement the vegetation. Rip-rap will provide a higher level of filtration and will slow the flow.

Level Lip Spreaders
Level spreaders will be used to collect runoff from swales and convert it to sheet flow across existing vegetated areas. The level lip will be at existing undisturbed grade and will be reinforced with either rip-rap or soft armour matting.

Haybales and or Silt Fence
As noted on the plans, haybales and/or silt fencing is installed at the toe of slopes near wetlands, below any dike construction (out of receiving channels) along the more expansive fill slopes, and at the toe of cleared slopes.

Construction Entrance
A crushed stone construction entrance shall be installed where the construction equipment will be entering the site. The location and details for the entrance are noted on the plans.

CONSTRUCTION PHASE

The following general practices will be implemented to prevent erosion during construction on this project:

1. Only those areas under active construction will be cleared and left in an untreated or unvegetated condition. Once construction of an area is complete, final grading, loaming and seeding shall occur immediately (refer to "Post Construction Revegetation" section). If final grading, loaming and seeding can not occur immediately, it shall be done prior to any storm event and within 15 days of completing construction in the area (within 7 days at stream crossings). If final grading, loaming and seeding cannot occur within 15 days, or if the area is not under active construction for a period longer than 15 days, see Item No. 5 below.

2. Prior to the start of construction in a specific area, silt fencing and or haybales will be installed as shown on the plans, at the toe of slope and in areas as located on the plans to protect against any construction related erosion. Immediately following construction of swales, additional stone check dams shall be installed, as shown on the plans.

3. Topsoil will be stockpiled when necessary in areas which have minimum potential for erosion and will be kept as far as possible from existing drainage areas and wetlands. All stockpiles expected to remain longer than 15 days shall be :

   A. Treated with anchored mulch (within 5 days of the last deposit of stockpiled soil).

   B. Seeded with conservation mix and mulched immediately.

Stockpiles expected to remain longer than 3 days shall be encircled with haybales or silt fence at the toe of the pile.

4. All disturbed areas expected to remain longer than 15 days shall be:

   A. Treated with straw at a rate of 70-90 lbs. per 1000 square feet from 4/14 to 10/1, or at a rate of 150-200 lbs. per 1000 square feet from 10/1 to 4/15.

   B. Seeded with conservation mix of perennial rye grass (1.0 lbs/1000 sq.ft.) and mulched immediately.

   C. Monitored every two weeks until seeding can occur and remulched as needed to protect slopes.

5. All grading will be held to a maximum 3:1 slope where practical, except as shown on the plan. Greater slopes may be used where the banks are protected with soft armour matting, erosion control matting, or riprap. All slopes will be stabilized with permanent seeding immediately after final grading is complete. (It is understood that immediately means within 5 days of the completion of work. See Post-Construction revegetation for seeding specification.)

6. Swales will be rock lined or soft armour matted where excessive flows or velocities might occur. The locations of these swales are noted on the plans.

7. Construction traffic will be directed over the construction entrance and existing and proposed driveway. Any areas subject to rutting will be stabilized immediately. The crushed stone construction entrance shall be maintained by the addition of more crushed stone as needed as the voids become filled.

POST CONSTRUCTION REVEGETATION

The following general practices will be implemented to prevent erosion as soon as an area is ready to undergo final grading:

1. A minimum of 4" of loam will be spread over disturbed areas and graded to a uniform depth and natural appearance.

2. If final grading is accomplished during the normal growing season (4/15 to 10/1), permanent seeding will be done as specified below. Prior to seeding, limestone shall be applied at a rate of 100 lbs/1000 sq. ft. and 10:20:20 fertilizer at a rate of 18.4 lbs/1000 sq. ft. will be applied. Broadcast seeding at the following rates:

   White Clover 0.46 lbs/1000 sf
   Sheep Fescue 0.80 lbs/1000 sf
   Annual Ryegrass 0.69 lbs/1000 sf

If permanent seeding areas that have received winter mulching, the top two inches of winter mulching should be removed.

3. An area shall be mulched immediately after it has been seeded. Mulching shall consist of hay mulch, hydro-mulch or any suitable substitute deemed acceptable by the Design Professional.

   A. Hay mulch shall be applied at the rate of 2 tons per acre. Hay mulch shall be secured by one of the following:
   Drive over with tracked construction equipment on grades of 5% and less.
   Blanket with tacked photodegradable/biodegradable netting on grades greater than 5%.

   B. Hydro-mulch shall consist of a mixture of asphalt, wood fibre or paper fibre and water which is sprayed over a seeded area. Hydro-mulch shall not be used between 10/1 and 4/15.

4. Construction shall be planned to eliminate the need for seeding between October 1st and April 15th. Should construction be necessary between these dates, following the WINTER CONSTRUCTION erosion control plan and standards as outlined below.

5. Where erosion control netting is called for in swales, the swale may be either:

   A. Seeded, mulched, and blanketed with photodegrable/biodegradable netting.

   B. Seeded and blanketed with netting containing excelsior, or with soft armour matting as noted on the plans.

All netting shall be anchored as per the Manufacturer's specs.

6. Following final seeding, the site will be inspected every 30 days until 80% cover has been established. Reseeding will be carried out by the contractor within 10 days of notification by the design professional that the existing catch is inadequate.

MONITORING SCHEDULE

The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and removing all of the erosion and sedimentation controls or appointing a qualified subcontractor to do so.

Maintenance measures will be applied as needed during the entire construction cycle. Immediately following any significant rainfall, and at least once a week, a visual inspection will be made of all erosion and sedimentation controls as follows:

1. Haybale barriers and silt fence shall be inspected and repaired. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6" and redistributed to areas undergoing final grading. Should the haybale barriers prove to be ineffective, the contractor shall install silt fence behind the haybales.

2. Stone check dams and level lip spreaders shall be visually inspected and repaired as needed. Sediment trapped behind these devices shall be removed once it attains a depth equal to ½ the height of the dam or riser. The sediment removed shall be distributed off-site or to an area undergoing final grading. The sediment and the removal thereof shall be handled in a manner that does not promote erosion or sedimentation.

3. Construction entrance shall be visually inspected and repaired as needed. Any areas subject to rutting shall be stabilized immediately. If the voids of the construction entrance become filled with mud, more crushed stone shall be added as needed. Any mud soil tracked onto the 390-400 common driveway shall be swept immediately and distributed back onto the site.

4. Maintenance of Filtration Basin: All sediment shall be removed from filtration basin at on or around April 1 each spring. After every major storm event, the filtration basin shall be inspected. At that time, eroded and or unstable area of the basin shall be repaired and all sediment shall be removed from the basin. All maintenance of the filtration basin shall conform with the most recent Maine DEP water quality standards and guideline (Chapter 500.)

EROSION CONTROL REMOVAL

An area is considered stable if it is paved or if 80% growth of planted seeds are established. Once an area is considered stable, the erosion control measures can be removed as follows:

1. Haybales and Silt Fence
The haybales and silt fence shall be disposed of legally and properly off-site. All sediment trapped behind these controls shall be distributed to an area undergoing final grading or removed and relocated off-site.

2. Stone Check Dams
The sediment trapped behind/around in stone check dams, shall be removed and relocated off-site or to an area undergoing final grading. The sediment trapped by these devices shall not be regraded locally since they exist in drainage ways. The rip-rap from the check dams and risers may be either:

   A. Removed or,

   B. Regraded in an aesthetic manner, which does not inhibit flow or create erosion.

3. Miscellaneous
Once all the trapped sediments have been removed from the temporary sedimentation devices (stone check dams), the disturbed areas must be regraded in an aesthetic manner to conform to the surrounding topography. Once graded these disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

The above erosion controls must be removed within 30 days of final stabilization of the site.

Conformance with this plan, and following these practices will result in a project that complies with the State Regulations and the Standards of the Natural Resources Protection Act, and will protect water quality in areas downstream from the project.

WINTER CONSTRUCTION

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75 % mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All area shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. SOIL STOCKPILES
Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs 1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. NATURAL RESOURCES PROTECTION
Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75 % mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats.

During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.

Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. SEDIMENT BARRIERS
During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. MULCHING
All area shall be considered to be denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs/1,000 s.f. or 1.5 tons/acre) and shall be properly anchored.

Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, asphalt emulsion chemical, track or wood cellulose fiber. When ground surface is not visible though the mulch then cover is sufficient.

After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading work day.

5. MULCHING ON SLOPES AND DITCHES
Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets.

Mulching shall be applied at a rate of 230 lbs/1,000 sft on all slopes greater than 8 %

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater that 3 % for slopes exposed to direct winds and for all other slopes greater that 8 %.

Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes 8 %.

Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. SEEDING
Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples.

If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas sufficiently vegetated (less than 75 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

7. TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION
Water from construction trench dewatering or temporary stream diversion will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 100 feet of a protected natural resource.

8. INSPECTION AND MONITORING
Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.

Following the temporary and or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/ or unestablished spots. Established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. Standard for the timely stabilization of ditches and channels -- The applicant will construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant will construct and stabilize all grass-lined ditches and channels on the site by September 15. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 15, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant will line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant will line the ditch with stone riprap by November 15. The applicant will hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant will construct and stabilize stone-covered slopes by November 15. The applicant will seed and mulch all slopes to be vegetated by September 15. The department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 15, then the applicant will take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By October 1 the applicant will seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant will cover the slope with a layer of woodwaste compost as described in item iii of this condition or with stone riprap as described in item iv of this condition.

Stabilize the slope with sod -- The applicant will stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant will not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant will place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant will remove any snow accumulation on the disturbed slope. The applicant will not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant will place a layer of stone riprap on the slope by November 15. The applicant will hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant will seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant will take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By October 1 the applicant will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant will monitor growth of the rye over the next 30 days. If the rye fails grow at least three inches or cover at least 75% of the disturbed soil before November 15, then the applicant will mulch the area for over-winter protection as described in item iii of this standard.

Stabilize the soil with sod -- The applicant will stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch -- By November 15 the applicant will mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant will remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

MOHR & SEREDIN
Landscape Architects, Inc.
18 Pleasant Street, Portland, Maine 04101
ph: 1.207.871.0003
fax: 1.207.871.1419

APPLICANT:
Rio-Tierra, LLC
655 Riverside Street
Portland, Maine 04103
p. 207.878.2024
f. 207.8782085

LOT 6 -- McALLISTER FARM SUBDIVISION
McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Erosion
Control Notes

No.	Date	Revision
1	4.26.05	Site Plan Submission
2	5.6.05	Per Peer Review

Job # 566 | Dwg. No. L3.1
Date: 18 Jan. 05
Scale: N.T.S.
Drawn: MK
Checked:

CITY OF PORTLAND: SITE PLAN SUBMISSION

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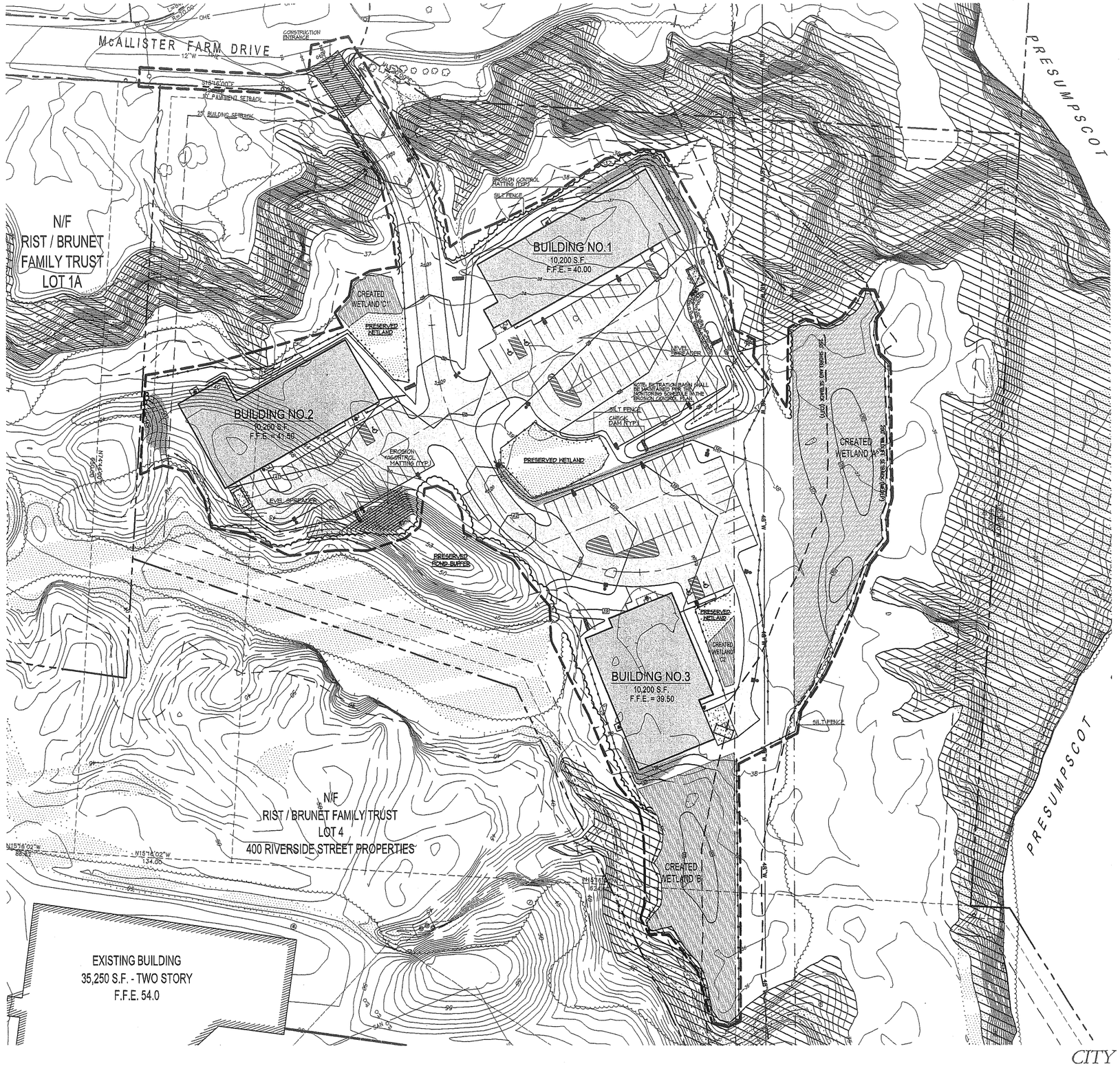

GRADING, DRAINAGE AND UTILITIES NOTES:

1. REFER TO SHEET L1.0 FOR BOUNDARY AND TOPOGRAPHIC INFORMATION.

2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.

3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.

4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.

5. LEVEL LIP SPREADERS SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.

6. OWNER AND LANDSCAPE ARCHITECT WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PERFORM FINISH WORK AS DIRECTED BY THE OWNER OR LANDSCAPE ARCHITECT TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.

7. ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE MOST RECENT EDITION OF CITY OF PORTLAND'S TECHNICAL GUIDELINES AND STANDARDS.

CREATED WETLAND AREAS:

WETLAND AREA 'A' = 14,025 SQUARE FEET

WETLAND AREA 'B' = 11,220 SQUARE FEET

WETLAND AREA 'C1' = 1,360 SQUARE FEET

WETLAND AREA 'C2' = 738 SQUARE FEET

TOTAL 32,343 SQUARE FEET

LEGEND

EXISTING		PROPOSED	
IRON PIPE OR ROD FOUND		EDGE OF PAVEMENT	
MONUMENT FOUND		PAVEMENT	
NOW OR FORERLY	N/F	LIGHT POLE	
UTILITY POLE		LIMIT OF WORK	
SIGN		TREELINE	
TELEPHONE MANHOLE	T	GUARDRAIL	
SEWER MANHOLE	S	CONCRETE PAD	
DRAIN MANHOLE	D	CONTOUR	58
CURB		SILT FENCE	
WATER VALVE	WV	RIP RAP	
CONTOUR	58	WATER	H2O
SEWER LINE	S	UNDERGROUND TELEPHONE AND ELECTRICITY	UGE+T
STORM DRAIN LINE	SD	STONE CHECK DAM	
PROPERTY LINE		EROSION CONTROL MATTING	
FEMA SETBACK		CREATED WETLAND	
WETLAND			

GRAPHIC SCALE

0 20' 40' 80' 160'

CITY OF PORTLAND: SITE PLAN SUBMISSION

MOIR ARSERDIN
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ph: 1.207.871.0003
fax: 1.207.871.1419

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LOT 6 -- McALLISTER FARM SUBDIVISION

McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Grading, Drainage, Erosion Control Plan

No.	Date	Revision
1	3.3.05	PER DEP COMMENTS
2	4.12.05	P.B. WORKSHOP
3	4.26.05	Site Plan Submission
4	5.6.05	Per Peer Review

Job # 566
Date: 18 Jan. 05
Scale: 1" = 40'
Drawn: MK
Checked:

Dwg. No.
L3.0

EROSION AND SEDIMENTATION CONTROL PLAN

INTRODUCTION

The following plan for controlling sedimentation and erosion in this project is based on conservation practices found in the Maine Erosion & Sediment Control BMPS Manual, Maine Department of Environmental Protection, March 2003, or latest edition. The contractor who implements this plan shall be familiar with this publication and adhere to it and the practices presented herein.

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The portion of the site to be developed consists of approximately 4 acres, and is adjacent to the southern shore of the Presumpscot River. Slopes range 1% to 3% in the portion of the site to be developed, with steeper slopes (15% to 30%) adjacent to the river. Soils on-site are mapped as Scantic by the SCS Medium Intensity Soils Survey for Cumberland County.

Reference is made to the erosion control plan (L3.0), showing the locations and types of proposed erosion control measures contained in this report.

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2. Correct any erosion problems immediately,
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4. Revegetate disturbed areas as soon as possible after construction.

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Swales (Vegetated Drainageway)

Grass-line swales will collect runoff from the site. To supplement grass-lines swales in steeper areas, or where there is high discharge or sediment load potential, either rip-rap or soft armour lining will be used to supplement the vegetation. Rip-rap will provide a higher level of filtration and will slow the flow.

Level Lip Spreaders

Level spreaders will be used to collect runoff from swales and convert it to sheet flow across existing vegetated areas. The level lip will be at existing undisturbed grade and will be reinforced with either rip-rap or soft armour matting.

Haybales and or Silt Fence

As noted on the plans, haybales and/or silt fencing is installed at the toe of slopes near wetlands, below any dike construction (out of receiving channels) along the more expansive fill slopes, and at the toe of cleared slopes.

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2. Prior to the start of construction in a specific area, silt fencing and or haybales will be installed as shown on the plans, at the toe of slope and in areas as located on the plans to protect against any construction related erosion. Immediately following construction of swales, additional stone check dams shall be installed, as shown on the plans.

3. Topsoil will be stockpiled when necessary in areas which have minimum potential for erosion and will be kept as far as possible from existing drainage areas and wetlands. All stockpiles expected to remain longer than 15 days shall be :

   A. Treated with anchored mulch (within 5 days of the last deposit of stockpiled soil).

   B. Seeded with conservation mix and mulched immediately.

Stockpiles expected to remain longer than 3 days shall be encircled with haybales or silt fence at the toe of the pile.

4. All disturbed areas expected to remain longer than 15 days shall be:

   A. Treated with straw at a rate of 70-90 lbs. per 1000 square feet from 4/14 to 10/1, or at a rate of 150-200 lbs. per 1000 square feet from 10/1 to 4/15.

   B. Seeded with conservation mix of perennial rye grass (1.0 lbs/1000 sq.ft.) and mulched immediately.

   C. Monitored every two weeks until seeding can occur and remulched as needed to protect slopes.

5. All grading will be held to a maximum 3:1 slope where practical, except as shown on the plan. Greater slopes may be used where the banks are protected with soft armour matting, erosion control matting, or riprap. All slopes will be stabilized with permanent seeding immediately after final grading is complete. (It is understood that immediately means within 5 days of the completion of work. See Post-Construction revegetation for seeding specification.)

6. Swales will be rock lined or soft armour matted where excessive flows or velocities might occur. The locations of these swales are noted on the plans.

7. Construction traffic will be directed over the construction entrance and existing and proposed driveway. Any areas subject to rutting will be stabilized immediately. The crushed stone construction entrance shall be maintained by the addition of more crushed stone as needed as the voids become filled.

POST CONSTRUCTION REVEGETATION

The following general practices will be implemented to prevent erosion as soon as an area is ready to undergo final grading:

1. A minimum of 4" of loam will be spread over disturbed areas and graded to a uniform depth and natural appearance.

2. If final grading is accomplished during the normal growing season (4/15 to 10/1), permanent seeding will be done as specified below. Prior to seeding, limestone shall be applied at a rate of 100 lbs/1000 sq. ft. and 10:20:20 fertilizer at a rate of 18.4 lbs/1000 sq. ft. will be applied. Broadcast seeding at the following rates:

   White Clover 0.46 lbs/1000 sf
   Sheep Fescue 0.80 lbs/1000 sf
   Annual Ryegrass 0.69 lbs/1000 sf

If permanent seeding areas that have received winter mulching, the top two inches of winter mulching should be removed.

3. An area shall be mulched immediately after it has been seeded. Mulching shall consist of hay mulch, hydro-mulch or any suitable substitute deemed acceptable by the Design Professional.

   A. Hay mulch shall be applied at the rate of 2 tons per acre. Hay mulch shall be secured by one of the following:
   Drive over with tracked construction equipment on grades of 5% and less.
   Blanket with tacked photodegradable/biodegradable netting on grades greater than 5%.

   B. Hydro-mulch shall consist of a mixture of asphalt, wood fibre or paper fibre and water which is sprayed over a seeded area. Hydro-mulch shall not be used between 10/1 and 4/15.

4. Construction shall be planned to eliminate the need for seeding between October 1st and April 15th. Should construction be necessary between these dates, following the WINTER CONSTRUCTION erosion control plan and standards as outlined below.

5. Where erosion control netting is called for in swales, the swale may be either:

   A. Seeded, mulched, and blanketed with photodegradable/biodegradable netting.

   B. Seeded and blanketed with netting containing excelsior, or with soft armour matting as noted on the plans.

All netting shall be anchored as per the Manufacturer's specs.

6. Following final seeding, the site will be inspected every 30 days until 80% cover has been established. Reseeding will be carried out by the contractor within 10 days of notification by the design professional that the existing catch is inadequate.

MONITORING SCHEDULE

The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and removing all of the erosion and sedimentation controls or appointing a qualified subcontractor to do so.

Maintenance measures will be applied as needed during the entire construction cycle. Immediately following any significant rainfall, and at least once a week, a visual inspection will be made of all erosion and sedimentation controls as follows:

1. Haybale barriers and silt fence shall be inspected and repaired. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6" and redistributed to areas undergoing final grading. Should the haybale barriers prove to be ineffective, the contractor shall install silt fence behind the haybales.

2. Stone check dams and level lip spreaders shall be visually inspected and repaired as needed. Sediment trapped behind these devices shall be removed once it attains a depth equal to ½ the height of the dam or riser. The sediment removed shall be distributed off-site or to an area undergoing final grading. The sediment and the removal thereof shall be handled in a manner that does not promote erosion or sedimentation.

3. Construction entrance shall be visually inspected and repaired as needed. Any areas subject to rutting shall be stabilized immediately. If the voids of the construction entrance become filled with mud, more crushed stone shall be added as needed. Any mud soil tracked onto the 390-400 common driveway shall be swept immediately and distributed back onto the site.

4. Maintenance of Filtration Basin: All sediment shall be removed from filtration basin at on or around April 1 each spring. After every major storm event, the filtration basin shall be inspected. At that time, eroded and or unstable area of the basin shall be repaired and all sediment shall be removed from the basin. All maintenance of the filtration basin shall conform with the most recent Maine DEP water quality standards and guideline (Chapter 500.)

EROSION CONTROL REMOVAL

An area is considered stable if it is paved or if 80% growth of planted seeds are established. Once an area is considered stable, the erosion control measures can be removed as follows:

1. Haybales and Silt Fence
The haybales and silt fence shall be disposed of legally and properly off-site. All sediment trapped behind these controls shall be distributed to an area undergoing final grading or removed and relocated off-site.

2. Stone Check Dams
The sediment trapped behind/around in stone check dams, shall be removed and relocated off-site or to an area undergoing final grading. The sediment trapped by these devices shall not be regraded locally since they exist in drainage ways. The rip-rap from the check dams and risers may be either:

   A. Removed or,

   B. Regraded in an aesthetic manner, which does not inhibit flow or create erosion.

3. Miscellaneous
Once all the trapped sediments have been removed from the temporary sedimentation devices (stone check dams), the disturbed areas must be regraded in an aesthetic manner to conform to the surrounding topography. Once graded these disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

The above erosion controls must be removed within 30 days of final stabilization of the site.

Conformance with this plan, and following these practices will result in a project that complies with the State Regulations and the Standards of the Natural Resources Protection Act, and will protect water quality in areas downstream from the project.

WINTER CONSTRUCTION

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75 % mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All area shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. SOIL STOCKPILES

Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs /1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. NATURAL RESOURCES PROTECTION

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75 % mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats.

During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.

Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. SEDIMENT BARRIERS

During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. MULCHING

All area shall be considered to be denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored.

Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, asphalt emulsion chemical, track or wood cellulose fiber. When ground surface is not visible though the mulch then cover is sufficient.

After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading work day.

5. MULCHING ON SLOPES AND DITCHES

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets.

Mulching shall be applied at a rate of 230 lbs/1,000 sft on all slopes greater than 8 %.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater that 3 % for slopes exposed to direct winds and for all other slopes greater that 8 %.

Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes 8 %.

Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. SEEDING

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples.

If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas sufficiently vegetated (less than 75 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

7. TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION

Water from construction trench dewatering or temporary stream diversion will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 100 feet of a protected natural resource.

8. INSPECTION AND MONITORING

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.

Following the temporary and or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/ or unestablished spots. Established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. Standard for the timely stabilization of ditches and channels -- The applicant will construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant will construct and stabilize all grass-lined ditches and channels on the site by September 15. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 15, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant will line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant will line the ditch with stone riprap by November 15. The applicant will hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant will construct and stabilize stone-covered slopes by November 15. The applicant will seed and mulch all slopes to be vegetated by September 15. The department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 15, then the applicant will take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By October 1 the applicant will seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant will cover the slope with a layer of woodwaste compost as described in item iii of this condition or with stone riprap as described in item iv of this condition.

Stabilize the slope with sod -- The applicant will stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant will not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant will place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant will remove any snow accumulation on the disturbed slope. The applicant will not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant will place a layer of stone riprap on the slope by November 15. The applicant will hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant will seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant will take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By October 1 the applicant will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant will monitor growth of the rye over the next 30 days. If the rye fails grow at least three inches or cover at least 75% of the disturbed soil before November 15, then the applicant will mulch the area for over-winter protection as described in item iii of this standard.

Stabilize the soil with sod -- The applicant will stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch -- By November 15 the applicant will mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant will remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

MOIR & EREDIN
Landscape Architects, Inc.
18 Pleasant Street, Portland, Maine 04101
ph: 1.207.871.0003
fax: 1.207.871.1419

APPLICANT:
Rio-Tierra, LLC
655 Riverside Street
Portland, Maine 04103
p. 207.878.2024
f. 207.8782085

LOT 6 -- McALLISTER FARM SUBDIVISION
McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Erosion
Control Notes

No.	Date	Revision
1	4.26.05	Site Plan Submission
2	5.6.05	Per Peer Review

Job # 566 | Dwg. No. L3.1
Date: 18 Jan. 05
Scale: N.T.S.
Drawn: MK
Checked:

CITY OF PORTLAND: SITE PLAN SUBMISSION

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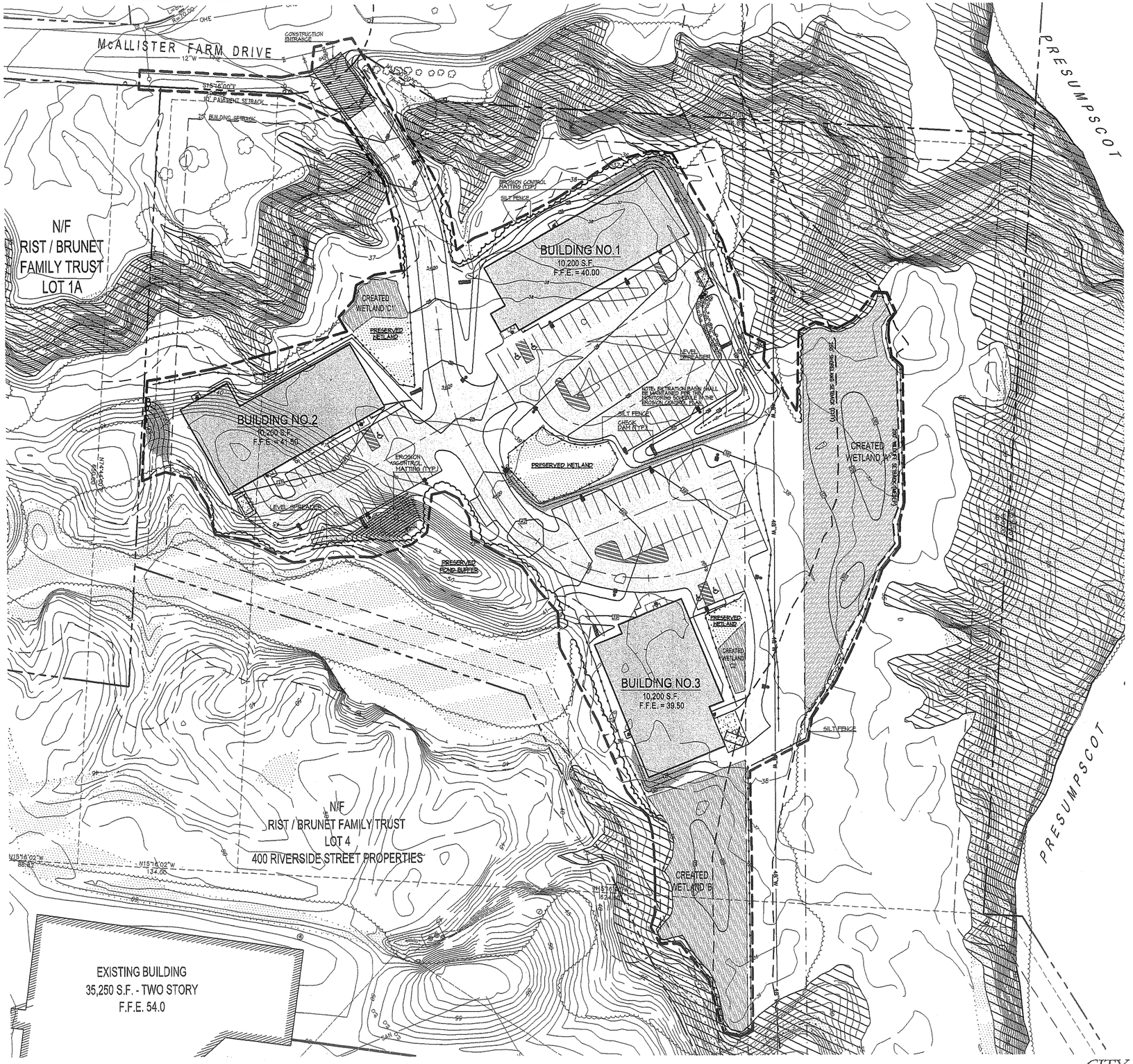

GRADING, DRAINAGE AND UTILITIES NOTES:

1. REFER TO SHEET L1.0 FOR BOUNDARY AND TOPOGRAPHIC INFORMATION.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.
5. LEVEL LIP SPREADERS SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
6. OWNER AND LANDSCAPE ARCHITECT WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PERFORM FINISH WORK AS DIRECTED BY THE OWNER OR LANDSCAPE ARCHITECT TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.
7. ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE MOST RECENT EDITION OF CITY OF PORTLAND'S TECHNICAL GUIDELINES AND STANDARDS.

CREATED WETLAND AREAS:

WETLAND AREA 'A' = 19,025 SQUARE FEET
WETLAND AREA 'B' = 11,220 SQUARE FEET
WETLAND AREA 'C1' = 1,360 SQUARE FEET
WETLAND AREA 'C2' = 738 SQUARE FEET
TOTAL 32,343 SQUARE FEET

LEGEND

EXISTING		PROPOSED	
IRON PIPE OR ROD FOUND		EDGE OF PAVEMENT	
MONUMENT FOUND		PAVEMENT	
NOW OR FORERLY	N/F	LIGHT POLE	
UTILITY POLE		LIMIT OF WORK	
SIGN		TREELINE	
TELEPHONE MANHOLE	T	GUARDRAIL	
SEWER MANHOLE	S	CONCRETE PAD	
DRAIN MANHOLE	D	CONTOUR	58
CURB		SILT FENCE	
WATER VALVE	WV	RIP RAP	
CONTOUR	58	WATER	H2O
SEWER LINE	S	UNDERGROUND TELEPHONE AND ELECTRICITY	UGE+T
STORM DRAIN LINE	SD	STONE CHECK DAM	
PROPERTY LINE		EROSION CONTROL MATTING	
FEMA SETBACK		CREATED WETLAND	
WETLAND			

GRAPHIC SCALE
0 20' 40' 80' 160'

CITY OF PORTLAND: SITE PLAN SUBMISSION

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fax: 1.207.871.1419

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Portland, Maine 04103
p. 207.878.2024
f. 207.8782085

LOT 6 -- McALLISTER FARM SUBDIVISION

McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Grading, Drainage, Erosion Control Plan

No.	Date	Revision
1	3.3.05	PUR DUP COMMENTS
2	4.12.05	P.D. WORKSHOP
3	4.26.05	Site Plan Submission
4	5.6.05	Per Peer Review

Job # 566
Date: 18 Jan. 05
Scale: 1" = 40'
Drawn: MK
Checked:

Dwg. No. L3.0

EROSION AND SEDIMENTATION CONTROL PLAN

INTRODUCTION
The following plan for controlling sedimentation and erosion in this project is based on conservation practices found in the Maine Erosion & Sediment Control BMPS Manual, Maine Department of Environmental Protection, March 2003, or latest edition. The contractor who implements this plan shall be familiar with this publication and adhere to it and the practices presented herein.

The project site is located at Lot 6, McAlister Farm Drive in Portland, Maine. The property is 12.6 acres in size and proposed development on the site consists of an entry drive, parking for 55 cars, and one 10,000 square foot office and warehouse facility.

The portion of the site to be developed consists of approximately 4 acres, and is adjacent to the southern shore of the Presumpscot River. Slopes range 1% to 3% in the portion of the site to be developed, with steeper slopes (15% to 30%) adjacent to the river. Soils on-site are mapped as Scantic by the SCS Medium Intensity Soils Survey for Cumberland County.

Reference is made to the erosion control plan (L3.0), showing the locations and types of proposed erosion control measures contained in this report.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES
The following is a list of general erosion control practices that will be used to prevent erosion and sedimentation before, during and after the construction of this project. In addition, special care shall be used at all times to:

1. Limit disturbance and, hence, erosion,
2. Correct any erosion problems immediately,
3. Regularly monitor the implemented practices, especially after every rainfall,
4. Revegetate disturbed areas as soon as possible after construction.

Stone-Check Dams
Stone check dams will be installed as shown on the plans. These check dams reduce flow velocities in swales and serve to filter and capture sediment before traveling downstream.

Swales (Vegetated Drainageway)
Grass-line swales will collect runoff from the site. To supplement grass-lines swales in steeper areas, or where there is high discharge or sediment load potential, either rip-rap or soft armour lining will be used to supplement the vegetation. Rip-rap will provide a higher level of filtration and will slow the flow.

Level Lip Spreaders
Level spreaders will be used to collect runoff from swales and convert it to sheet flow across existing vegetated areas. The level lip will be at existing undisturbed grade and will be reinforced with either rip-rap or soft armour matting.

Haybales and or Silt Fence
As noted on the plans, haybales and/or silt fencing is installed at the toe of slopes near wetlands, below any dike construction (out of receiving channels) along the more expansive fill slopes, and at the toe of cleared slopes.

Construction Entrance
A crushed stone construction entrance shall be installed where the construction equipment will be entering the site. The location and details for the entrance are noted on the plans.

CONSTRUCTION PHASE
The following general practices will be implemented to prevent erosion during construction on this project:

1. Only those areas under active construction will be cleared and left in an untreated or unvegetated condition. Once construction of an area is complete, final grading, loaming and seeding shall occur immediately (refer to "Post Construction Revegetation" section). If final grading, loaming and seeding can not occur immediately, it shall be done prior to any storm event and within 15 days of completing construction in the area (within 7 days at stream crossings). If final grading, loaming and seeding cannot occur within 15 days, or if the area is not under active construction for a period longer than 15 days, see Item No. 5 below.

2. Prior to the start of construction in a specific area, silt fencing and or haybales will be installed as shown on the plans, at the toe of slope and in areas as located on the plans to protect against any construction related erosion. Immediately following construction of swales, additional stone check dams shall be installed, as shown on the plans.

3. Topsoil will be stockpiled when necessary in areas which have minimum potential for erosion and will be kept as far as possible from existing drainage areas and wetlands. All stockpiles expected to remain longer than 15 days shall be :

A. Treated with anchored mulch (within 5 days of the last deposit of stockpiled soil).

B. Seeded with conservation mix and mulched immediately.

Stockpiles expected to remain longer than 3 days shall be encircled with haybales or silt fence at the toe of the pile.

4. All disturbed areas expected to remain longer than 15 days shall be:

A. Treated with straw at a rate of 70-90 lbs. per 1000 square feet from 4/14 to 10 1, or at a rate of 150-200 lbs. per 1000 square feet from 10 1 to 4/15.

B. Seeded with conservation mix of perennial rye grass (1.0 lbs/1000 sq.ft.) and mulched immediately.

C. Monitored every two weeks until seeding can occur and remulched as needed to protect slopes.

5. All grading will be held to a maximum 3:1 slope where practical, except as shown on the plan. Greater slopes may be used where the banks are protected with soft armour matting, erosion control matting, or riprap. All slopes will be stabilized with permanent seeding immediately after final grading is complete. (It is understood that immediately means within 5 days of the completion of work. See Post-Construction revegetation for seeding specification.)

6. Swales will be rock lined or soft armour matted where excessive flows or velocities might occur. The locations of these swales are noted on the plans.

7. Construction traffic will be directed over the construction entrance and existing and proposed driveway. Any areas subject to rutting will be stabilized immediately. The crushed stone construction entrance shall be maintained by the addition of more crushed stone as needed as the voids become filled.

POST CONSTRUCTION REVEGETATION
The following general practices will be implemented to prevent erosion as soon as an area is ready to undergo final grading:

1. A minimum of 4" of loam will be spread over disturbed areas and graded to a uniform depth and natural appearance.

2. If final grading is accomplished during the normal growing season (4/15 to 10/1), permanent seeding will be done as specified below. Prior to seeding, limestone shall be applied at a rate of 100 lbs/1000 sq. ft. and 10:20:20 fertilizer at a rate of 18.4 lbs/1000 sq. ft. will be applied. Broadcast seeding at the following rates:

White Clover 0.46 lbs/1000 sf
Sheep Fescue 0.80 lbs/1000 sf
Annual Ryegrass 0.69 lbs/1000 sf

If permanent seeding areas that have received winter mulching, the top two inches of winter mulching should be removed.

3. An area shall be mulched immediately after it has been seeded. Mulching shall consist of hay mulch, hydro-mulch or any suitable substitute deemed acceptable by the Design Professional.

A. Hay mulch shall be applied at the rate of 2 tons per acre. Hay mulch shall be secured by one of the following:
Drive over with tracked construction equipment on grades of 5% and less.
Blanket with tacked photodegradable/biodegradable netting on grades greater than 5%.

B. Hydro-mulch shall consist of a mixture of asphalt, wood fibre or paper fibre and water which is sprayed over a seeded area. Hydro-mulch shall not be used between 10/1 and 4/15.

4. Construction shall be planned to eliminate the need for seeding between October 1st and April 15th. Should construction be necessary between these dates, following the WINTER CONSTRUCTION erosion control plan and standards as outlined below.

5. Where erosion control netting is called for in swales, the swale may be either:

A. Seeded, mulched, and blanketed with photodegrable/biodegradable netting.

B. Seeded and blanketed with netting containing excelsior, or with soft armour matting as noted on the plans.

All netting shall be anchored as per the Manufacturer's specs.

6. Following final seeding, the site will be inspected every 30 days until 80% cover has been established. Reseeding will be carried out by the contractor within 10 days of notification by the design professional that the existing catch is inadequate.

MONITORING SCHEDULE
The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and removing all of the erosion and sedimentation controls or appointing a qualified subcontractor to do so.

Maintenance measures will be applied as needed during the entire construction cycle. Immediately following any significant rainfall, and at least once a week, a visual inspection will be made of all erosion and sedimentation controls as follows:

1. Haybale barriers and silt fence shall be inspected and repaired. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6" and redistributed to areas undergoing final grading. Should the haybale barriers prove to be ineffective, the contractor shall install silt fence behind the haybales.

2. Stone check dams and level lip spreaders shall be visually inspected and repaired as needed. Sediment trapped behind these devices shall be removed once it attains a depth equal to ½ the height of the dam or riser. The sediment removed shall be distributed off-site or to an area undergoing final grading. The sediment and the removal thereof shall be handled in a manner that does not promote erosion or sedimentation.

3. Construction entrance shall be visually inspected and repaired as needed. Any areas subject to rutting shall be stabilized immediately. If the voids of the construction entrance become filled with mud, more crushed stone shall be added as needed. Any mud soil tracked onto the 390-400 common driveway shall be swept immediately and distributed back onto the site.

4. Maintenance of Filtration Basin: All sediment shall be removed from filtration basin at on or around April 1 each spring. After every major storm event, the filtration basin shall be inspected. At that time, eroded and or unstable area of the basin shall be repaired and all sediment shall be removed from the basin. All maintenance of the filtration basin shall conform with the most recent Maine DEP water quality standards and guideline (Chapter 500.)

EROSION CONTROL REMOVAL
An area is considered stable if it is paved or if 80% growth of planted seeds are established. Once an area is considered stable, the erosion control measures can be removed as follows:

1. Haybales and Silt Fence
The haybales and silt fence shall be disposed of legally and properly off-site. All sediment trapped behind these controls shall be distributed to an area undergoing final grading or removed and relocated off-site.

2. Stone Check Dams
The sediment trapped behind/around in stone check dams, shall be removed and relocated off-site or to an area undergoing final grading. The sediment trapped by these devices shall not be regraded locally since they exist in drainage ways. The rip-rap from the check dams and risers may be either:

A. Removed or,

B. Regraded in an aesthetic manner, which does not inhibit flow or create erosion. *

3. Miscellaneous
Once all the trapped sediments have been removed from the temporary sedimentation devices (stone check dams), the disturbed areas must be regraded in an aesthetic manner to conform to the surrounding topography. Once graded these disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

The above erosion controls must be removed within 30 days of final stabilization of the site.

Conformance with this plan, and following these practices will result in a project that complies with the State Regulations and the Standards of the Natural Resources Protection Act, and will protect water quality in areas downstream from the project.

WINTER CONSTRUCTION

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75 % mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All area shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. SOIL STOCKPILES
Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs 1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. NATURAL RESOURCES PROTECTION
Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75 % mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats.

During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.

Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. SEDIMENT BARRIERS
During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. MULCHING
All area shall be considered to be denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored.

Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, asphalt emulsion chemical, track or wood cellulose fiber. When ground surface is not visible though the mulch then cover is sufficient.

After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading work day.

5. MULCHING ON SLOPES AND DITCHES
Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets.

Mulching shall be applied at a rate of 230 lbs/1,000 sft on all slopes greater than 8 %.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater that 3 % for slopes exposed to direct winds and for all other slopes greater that 8 %.

Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes 8 %.

Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. SEEDING
Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples.

If dormant seeding is used for the site, all disturbed areas shall receive 4' of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas sufficiently vegetated (less than 75 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

7. TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION
Water from construction trench dewatering or temporary stream diversion will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 100 feet of a protected natural resource.

8. INSPECTION AND MONITORING
Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.

Following the temporary and or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/ or unestablished spots. Established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. Standard for the timely stabilization of ditches and channels -- The applicant will construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant will construct and stabilize all grass-lined ditches and channels on the site by September 15. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 15, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant will line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant will line the ditch with stone riprap by November 15. The applicant will hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant will construct and stabilize stone-covered slopes by November 15. The applicant will seed and mulch all slopes to be vegetated by September 15. The department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 15, then the applicant will take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By October 1 the applicant will seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant will cover the slope with a layer of woodwaste compost as described in item iii of this condition or with stone riprap as described in item iv of this condition.

Stabilize the slope with sod -- The applicant will stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant will not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant will place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant will remove any snow accumulation on the disturbed slope. The applicant will not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant will place a layer of stone riprap on the slope by November 15. The applicant will hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant will seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant will take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By October 1 the applicant will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant will monitor growth of the rye over the next 30 days. If the rye fails grow at least three inches or cover at least 75% of the disturbed soil before November 15, then the applicant will mulch the area for over-winter protection as described in item iii of this standard.

Stabilize the soil with sod -- The applicant will stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch -- By November 15 the applicant will mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant will remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

CITY OF PORTLAND: SITE PLAN SUBMISSION

MOIR & SEREDIN
Landscape Architects, Inc.
18 Pleasant Street, Portland, Maine 04101
ph: 1.207.871.0003
fax: 1.207.871.1419

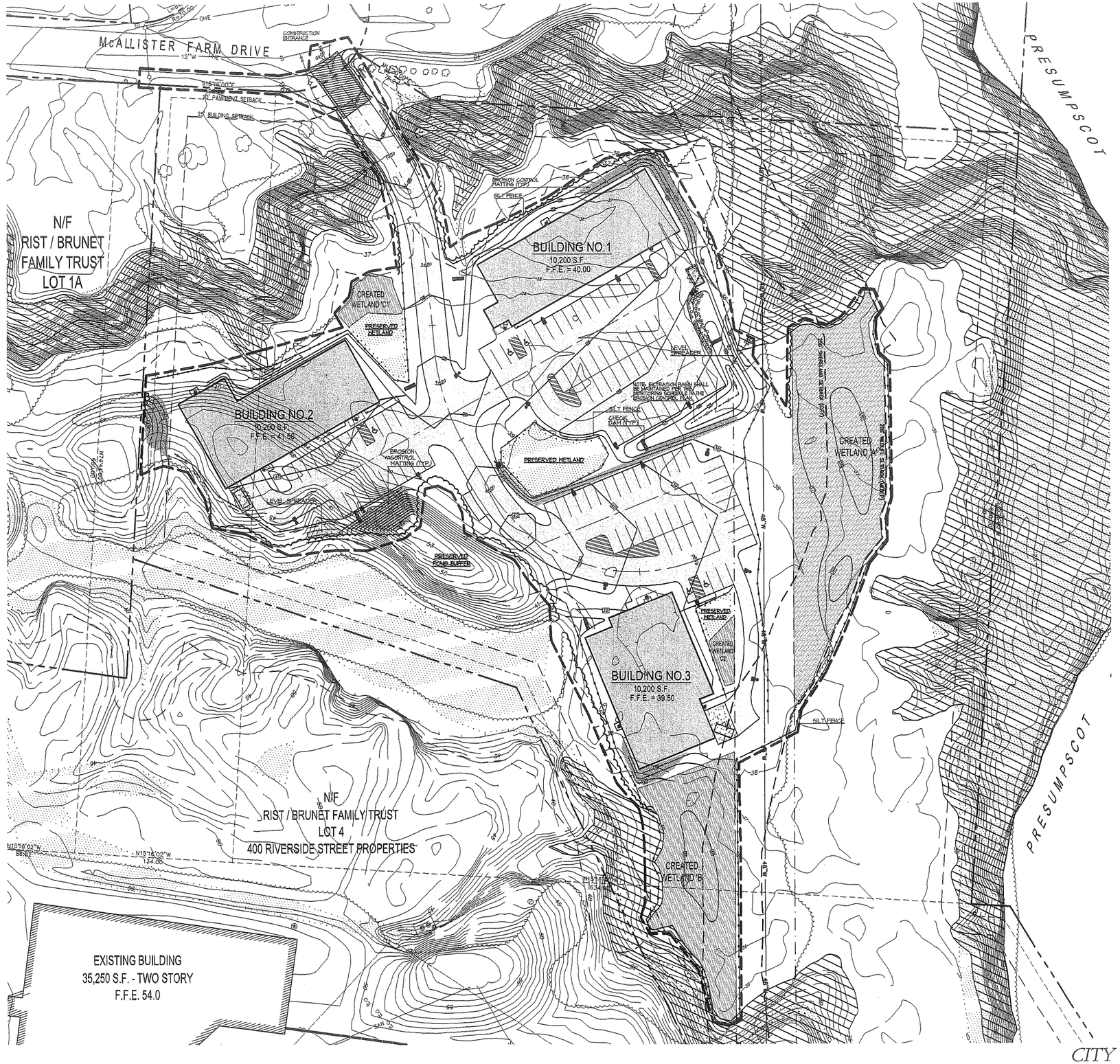
APPLICANT:
Rio-Tierra, LLC
655 Riverside Street
Portland, Maine 04103
p. 207.878.2024
f. 207.8782085

LOT 6 -- McALLISTER FARM SUBDIVISION
McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Erosion Control Notes

No.	Date	Revision
1	4.26.05	Site Plan Submission
2	5.6.05	Per Peer Review

Job # 566
Date: 18 Jan. 05
Scale: N.T.S.
Drawn: MK
Checked:
Dwg. No.
L3.1



GRADING, DRAINAGE AND UTILITIES NOTES:

1. REFER TO SHEET L1.0 FOR BOUNDARY AND TOPOGRAPHIC INFORMATION.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.
5. LEVEL LIP SPREADERS SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
6. OWNER AND LANDSCAPE ARCHITECT WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PEFORM FINISH WORK AS DIRECTED BY THE OWNER OR LANDSCAPE ARCHITECT TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.
7. ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE MOST RECENT EDITION OF CITY OF PORTLAND'S TECHNICAL GUIDELINES AND STANDARDS.

CREATED WETLAND AREAS:

WETLAND AREA 'A' =	14,025 SQUARE FEET
WETLAND AREA 'B' =	11,220 SQUARE FEET
WETLAND AREA 'C1' =	1,360 SQUARE FEET
WETLAND AREA 'C2' =	738 SQUARE FEET
TOTAL	32,343 SQUARE FEET

LEGEND

EXISTING		PROPOSED	
IRON PIPE OR ROD FOUND	○	EDGE OF PAVEMENT	
MONUMENT FOUND	⊡	PAVEMENT	
NOW OR FORERLY	N/F	LIGHT POLE	
UTILITY POLE		LIMIT OF WORK	
SIGN		TREELINE	
TELEPHONE MANHOLE	Ⓣ	GUARDRAIL	
SEWER MANHOLE	Ⓢ	CONCRETE PAD	
DRAIN MANHOLE	Ⓓ	CONTOUR	58
CURB		SILT FENCE	
WATER VALVE	WV	RIP RAP	
CONTOUR	58	WATER	W
SEWER LINE	S	UNDERGROUND TELEPHONE AND ELECTRICITY	UGE+T
STORM DRAIN LINE	SD	STONE CHECK DAM	
PROPERTY LINE		EROSION CONTROL MATTING	
FEMA SETBACK		CREATED WETLAND	
WETLAND			

GRAPHIC SCALE
0 20' 40' 80' 160'

CITY OF PORTLAND: SITE PLAN SUBMISSION

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18 Pleasant Street, Portland, Maine 04101
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APPLICANT:
Rio-Tierra, LLC
655 Riverside Street
Portland, Maine 04103
p. 207.878.2024
f. 207.8782085

LOT 6 -- McALLISTER FARM SUBDIVISION

McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Grading, Drainage, Erosion Control Plan

No.	Date	Revision
1	3.3.05	PER DEP COMMENTS
2	4.12.05	P.B. WORKSHOP
3	4.26.05	Site Plan Submission
4	5.6.05	Per Peer Review

Job # 566	Dwg. No.
Date: 18 Jan. 05	L3.0
Scale: 1" = 40'	
Drawn: MK	
Checked:	

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EROSION AND SEDIMENTATION CONTROL PLAN

INTRODUCTION

The following plan for controlling sedimentation and erosion in this project is based on conservation practices found in the Maine Erosion & Sediment Control BMPS Manual, Maine Department of Environmental Protection, March 2003, or latest edition. The contractor who implements this plan shall be familiar with this publication and adhere to it and the practices presented herein.

The project site is located at Lot 6, McAlister Farm Drive in Portland, Maine. The property is 12.6 acres in size and proposed development on the site consists of an entry drive, parking for 55 cars, and one 10,000 square foot office and warehouse facility.

The portion of the site to be developed consists of approximately 4 acres, and is adjacent to the southern shore of the Presumpscot River. Slopes range 15% to 3% in the portion of the site to be developed, with steeper slopes (15% to 30%) adjacent to the river. Soils on-site are mapped as Scantic by the SCS Medium Intensity Soils Survey for Cumberland County.

Reference is made to the erosion control plan (L3.0), showing the locations and types of proposed erosion control measures contained in this report.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES

The following is a list of general erosion control practices that will be used to prevent erosion and sedimentation before, during and after the construction of this project. In addition, special care shall be used at all times to:

1. Limit disturbance and, hence, erosion,
2. Correct any erosion problems immediately,
3. Regularly monitor the implemented practices, especially after every rainfall,
4. Revegetate disturbed areas as soon as possible after construction.

Stone-Check Dams
Stone check dams will be installed as shown on the plans. These check dams reduce flow velocities in swales and serve to filter and capture sediment before traveling downstream.

Swales (Vegetated Drainageway)
Grass-line swales will collect runoff from the site. To supplement grass-lines swales in steeper areas, or where there is high discharge or sediment load potential, either rip-rap or soft armour lining will be used to supplement the vegetation. Rip-rap will provide a higher level of filtration and will slow the flow.

Level Lip Spreaders
Level spreaders will be used to collect runoff from swales and convert it to sheet flow across existing vegetated areas. The level lip will be at existing undisturbed grade and will be reinforced with either rip-rap or soft armour matting.

Haybales and or Silt Fence
As noted on the plans, haybales and/or silt fencing is installed at the toe of slopes near wetlands, below any dike construction (out of receiving channels) along the more expansive fill slopes, and at the toe of cleared slopes.

Construction Entrance
A crushed stone construction entrance shall be installed where the construction equipment will be entering the site. The location and details for the entrance are noted on the plans.

CONSTRUCTION PHASE

The following general practices will be implemented to prevent erosion during construction on this project:

1. Only those areas under active construction will be cleared and left in an untreated or unvegetated condition. Once construction of an area is complete, final grading, loaming and seeding shall occur immediately (refer to "Post Construction Revegetation" section). If final grading, loaming and seeding can not occur immediately, it shall be done prior to any storm event and within 15 days of completing construction in the area (within 7 days at stream crossings). If final grading, loaming and seeding cannot occur within 15 days, or if the area is not under active construction for a period longer than 15 days, see Item No. 5 below.

2. Prior to the start of construction in a specific area, silt fencing and or haybales will be installed as shown on the plans, at the toe of slope and in areas as located on the plans to protect against any construction related erosion. Immediately following construction of swales, additional stone check dams shall be installed, as shown on the plans.

3. Topsoil will be stockpiled when necessary in areas which have minimum potential for erosion and will be kept as far as possible from existing drainage areas and wetlands. All stockpiles expected to remain longer than 15 days shall be :

   A. Treated with anchored mulch (within 5 days of the last deposit of stockpiled soil).

   B. Seeded with conservation mix and mulched immediately.

Stockpiles expected to remain longer than 3 days shall be encircled with haybales or silt fence at the toe of the pile.

4. All disturbed areas expected to remain longer than 15 days shall be:

   A. Treated with straw at a rate of 70-90 lbs. per 1000 square feet from 4/14 to 10/1, or at a rate of 150-200 lbs. per 1000 square feet from 10/1 to 4/15.

   B. Seeded with conservation mix of perennial rye grass (1.0 lbs/1000 sq.ft.) and mulched immediately.

   C. Monitored every two weeks until seeding can occur and remulched as needed to protect slopes.

5. All grading will be held to a maximum 3:1 slope where practical, except as shown on the plan. Greater slopes may be used where the banks are protected with soil armour matting, erosion control matting, or riprap. All slopes will be stabilized with permanent seeding immediately after final grading is complete. (It is understood that immediately means within 5 days of the completion of work. See Post-Construction revegetation for seeding specification.)

6. Swales will be rock lined or soft armour matted where excessive flows or velocities might occur. The locations of these swales are noted on the plans.

7. Construction traffic will be directed over the construction entrance and existing and proposed driveway. Any areas subject to rutting will be stabilized immediately. The crushed stone construction entrance shall be maintained by the addition of more crushed stone as needed as the voids become filled.

POST CONSTRUCTION REVEGETATION

The following general practices will be implemented to prevent erosion as soon as an area is ready to undergo final grading:

1. A minimum of 4" of loam will be spread over disturbed areas and graded to a uniform depth and natural appearance.

2. If final grading is accomplished during the normal growing season (4/15 to 10/1), permanent seeding will be done as specified below. Prior to seeding, limestone shall be applied at a rate of 100 lbs/1000 sq. ft. and 10:20:20 fertilizer at a rate of 18.4 lbs/1000 sq. ft. will be applied. Broadcast seeding at the following rates:

   White Clover 0.46 lbs/1000 sf
   Sheep Fescue 0.80 lbs/1000 sf
   Annual Ryegrass 0.69 lbs/1000 sf

If permanent seeding areas that have received winter mulching, the top two inches of winter mulching should be removed.

3. An area shall be mulched immediately after it has been seeded. Mulching shall consist of hay mulch, hydro-mulch or any suitable substitute deemed acceptable by the Design Professional.

   A. Hay mulch shall be applied at the rate of 2 tons per acre. Hay mulch shall be secured by one of the following:
   Drive over with tracked construction equipment on grades of 5% and less.
   Blanket with tacked photodegradable/biodegradable netting on grades greater than 5%.

   B. Hydro-mulch shall consist of a mixture of asphalt, wood fibre or paper fibre and water which is sprayed over a seeded area. Hydro-mulch shall not be used between 10/1 and 4/15.

4. Construction shall be planned to eliminate the need for seeding between October 1st and April 15th. Should construction be necessary between these dates, following the WINTER CONSTRUCTION erosion control plan and standards as outlined below.

5. Where erosion control netting is called for in swales, the swale may be either:

   A. Seeded, mulched, and blanketed with photodegrable/biodegradable netting.

   B. Seeded and blanketed with netting containing excelsior, or with soft armour matting as noted on the plans.

All netting shall be anchored as per the Manufacturer's specs.

6. Following final seeding, the site will be inspected every 30 days until 80% cover has been established. Reseeding will be carried out by the contractor within 10 days of notification by the design professional that the existing catch is inadequate.

MONITORING SCHEDULE

The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and removing all of the erosion and sedimentation controls or appointing a qualified subcontractor to do so.

Maintenance measures will be applied as needed during the entire construction cycle. Immediately following any significant rainfall, and at least once a week, a visual inspection will be made of all erosion and sedimentation controls as follows:

1. Haybale barriers and silt fence shall be inspected and repaired. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6" and redistributed to areas undergoing final grading. Should the haybale barriers prove to be ineffective, the contractor shall install silt fence behind the haybales.

2. Stone check dams and level lip spreaders shall be visually inspected and repaired as needed. Sediment trapped behind these devices shall be removed once it attains a depth equal to ½ the height of the dam or riser. The sediment removed shall be distributed off-site or to an area undergoing final grading. The sediment and the removal thereof shall be handled in a manner that does not promote erosion or sedimentation.

3. Construction entrance shall be visually inspected and repaired as needed. Any areas subject to rutting shall be stabilized immediately. If the voids of the construction entrance become filled with mud, more crushed stone shall be added as needed. Any mud soil tracked onto the 390-400 common driveway shall be swept immediately and distributed back onto the site.

4. Maintenance of Filtration Basin: All sediment shall be removed from filtration basin at on or around April 1 each spring. After every major storm event, the filtration basin shall be inspected. At that time, eroded and or unstable area of the basin shall be repaired and all sediment shall be removed from the basin. All maintenance of the filtration basin shall conform with the most recent Maine DEP water quality standards and guideline (Chapter 500.)

EROSION CONTROL REMOVAL

An area is considered stable if it is paved or if 80% growth of planted seeds are established. Once an area is considered stable, the erosion control measures can be removed as follows:

1. Haybales and Silt Fence
The haybales and silt fence shall be disposed of legally and properly off-site. All sediment trapped behind these controls shall be distributed to an area undergoing final grading or removed and relocated off-site.

2. Stone Check Dams
The sediment trapped behind/around in stone check dams, shall be removed and relocated off-site or to an area undergoing final grading. The sediment trapped by these devices shall not be regraded locally since they exist in drainage ways. The rip-rap from the check dams and risers may be either:

   A. Removed or,

   B. Regraded in an aesthetic manner, which does not inhibit flow or create erosion. *

3. Miscellaneous
Once all the trapped sediments have been removed from the temporary sedimentation devices (stone check dams), the disturbed areas must be regraded in an aesthetic manner to conform to the surrounding topography. Once graded these disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

The above erosion controls must be removed within 30 days of final stabilization of the site.

Conformance with this plan, and following these practices will result in a project that complies with the State Regulations and the Standards of the Natural Resources Protection Act, and will protect water quality in areas downstream from the project.

WINTER CONSTRUCTION

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75 % mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at any one time. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All area shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. SOIL STOCKPILES
Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs 1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. NATURAL RESOURCES PROTECTION
Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75 % mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats.

During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.

Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. SEDIMENT BARRIERS
During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. MULCHING
All area shall be considered to be denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored.

Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, asphalt emulsion chemical, tuck or wood cellulose fiber. When ground surface is not visible though the mulch then cover is sufficient.

After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading work day.

5. MULCHING ON SLOPES AND DITCHES
Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets.

Mulching shall be applied at a rate of 230 lbs/1,000 sft on all slopes greater than 8 %.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater that 3 ½ for slopes exposed to direct winds and for all other slopes greater that 8 %.

Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes 8 %.

Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. SEEDING
Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples.

If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas sufficiently vegetated (less than 75 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

7. TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION
Water from construction trench dewatering or temporary stream diversion will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 100 feet of a protected natural resource.

8. INSPECTION AND MONITORING
Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.

Following the temporary and or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/ or unestablished spots. Established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. Standard for the timely stabilization of ditches and channels -- The applicant will construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant will construct and stabilize all grass-lined ditches and channels on the site by September 15. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 15, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant will line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant will line the ditch with stone riprap by November 15. The applicant will hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant will construct and stabilize stone-covered slopes by November 15. The applicant will seed and mulch all slopes to be vegetated by September 15. The department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 15, then the applicant will take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By October 1 the applicant will seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant will cover the slope with a layer of woodwaste compost as described in item iii of this condition or with stone riprap as described in item iv of this condition.

Stabilize the slope with sod -- The applicant will stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant will not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant will place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant will remove any snow accumulation on the disturbed slope. The applicant will not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant will place a layer of stone riprap on the slope by November 15. The applicant will hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant will seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant will take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By October 1 the applicant will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant will monitor growth of the rye over the next 30 days. If the rye fails grow at least three inches or cover at least 75% of the disturbed soil before November 15, then the applicant will mulch the area for over-winter protection as described in item iii of this standard.

Stabilize the soil with sod -- The applicant will stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch -- By November 15 the applicant will mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant will remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

MOIR & SEREDIN
Landscape Architects, Inc.
18 Pleasant Street, Portland, Maine 04101
ph: 1.207.871.0003
fax: 1.207.871.1419

APPLICANT:
Rio-Tierra, LLC
655 Riverside Street
Portland, Maine 04103
p. 207.878.2024
f. 207.8782085

LOT 6 -- McALLISTER FARM SUBDIVISION
McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Erosion
Control Notes

No.	Date	Revision
1	4.26.05	Site Plan Submission
2	5.6.05	Per Peer Review

Job # 566
Date: 18 Jan. 05
Scale: N.T.S.
Drawn: MK
Checked:
Dwg. No. L3.1

CITY OF PORTLAND: SITE PLAN SUBMISSION

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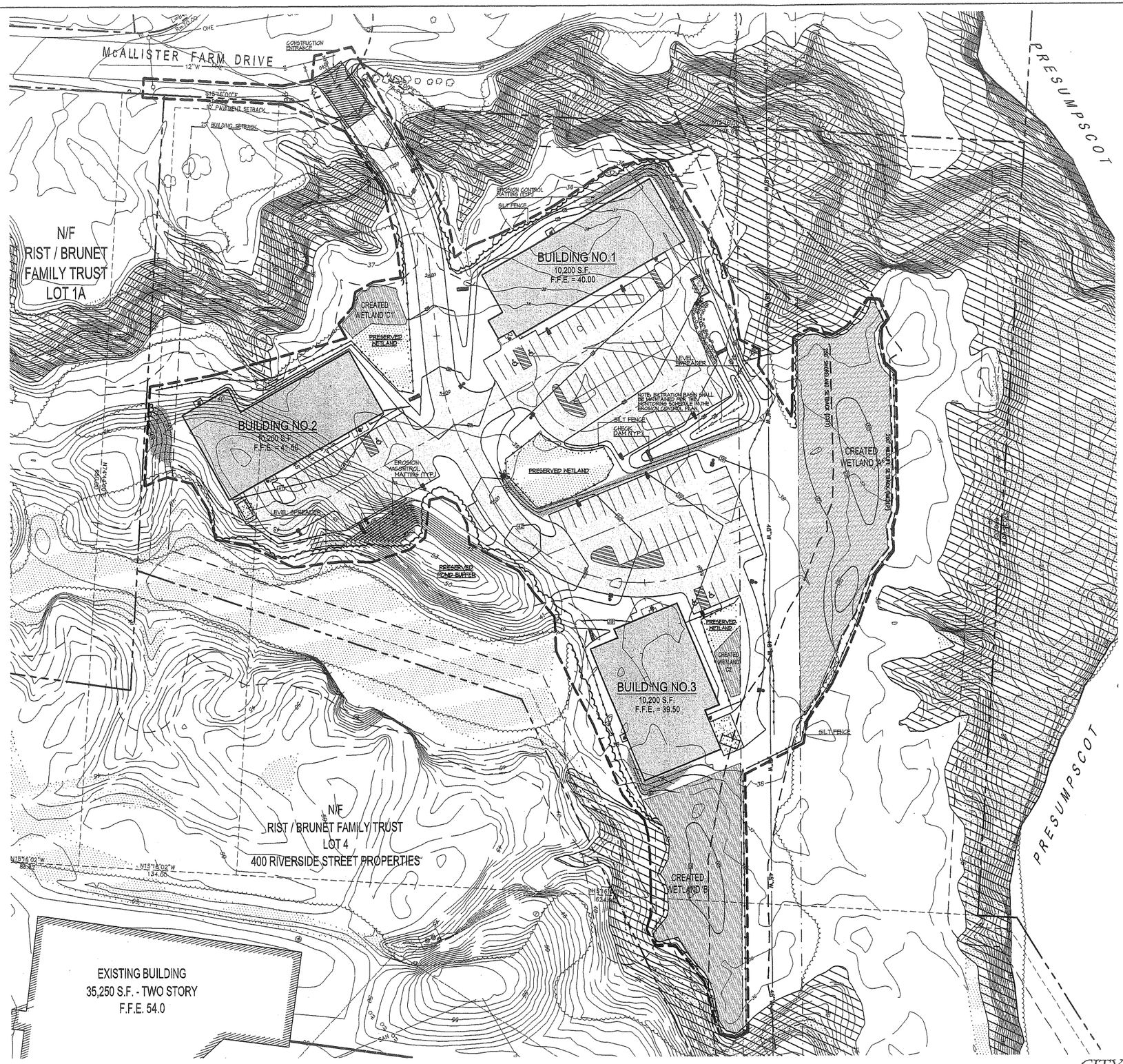

GRADING, DRAINAGE AND UTILITIES NOTES:

1. REFER TO SHEET L1.0 FOR BOUNDARY AND TOPOGRAPHIC INFORMATION.
2. PRIOR TO ANY CONSTRUCTION ACTIVITIES, CONTRACTOR SHALL VERIFY ALL AFFECTED GRADES. ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE OWNER OR OWNER'S REPRESENTATIVE.
3. ALL AREAS NOT REQUIRING GRADING SHALL BE LEFT UNDISTURBED. CONTRACTOR SHALL NOT DISTURB THESE AREAS AND PRESERVE EXISTING VEGETATION.
4. GRADE ALL NEW WORK FOR POSITIVE DRAINAGE AND NO PUDDLING. MATCH EXISTING GRADES SMOOTHLY AND CONTINUOUSLY.
5. LEVEL LIP SPREADERS SHALL BE RIP-RAPPED UNLESS OTHERWISE SPECIFIED OR NOTED ON THE PLANS, OR AS DIRECTED BY THE OWNER OR OWNER'S REPRESENTATIVE.
6. OWNER AND LANDSCAPE ARCHITECT WILL BE CLOSELY MONITORING FINISH GRADING IN THE FIELD. CONTRACTOR SHALL PERFORM FINISH WORK AS DIRECTED BY THE OWNER OR LANDSCAPE ARCHITECT TO ACHIEVE THE FINISH GRADE CONDITIONS SHOWN ON THE PLANS.
7. ALL SITE IMPROVEMENTS INCLUDING UTILITIES MUST CONFORM TO THE MOST RECENT EDITION OF CITY OF PORTLAND'S TECHNICAL GUIDELINES AND STANDARDS.

CREATED WETLAND AREAS:

WETLAND AREA 'A' = 19,025 SQUARE FEET
WETLAND AREA 'B' = 11,220 SQUARE FEET
WETLAND AREA 'C1' = 1360 SQUARE FEET
WETLAND AREA 'C2' = 738 SQUARE FEET
TOTAL 32343 SQUARE FEET

LEGEND

EXISTING		PROPOSED	
IRON PIPE OR ROD FOUND	○	EDGE OF PAVEMENT	
MONUMENT FOUND	▪	PAVEMENT	
NOW OR FORERLY	N/F	LIGHT POLE	
UTILITY POLE		LIMIT OF WORK	
SIGN		TREELINE	
TELEPHONE MANHOLE	T	GUARDRAIL	
SEWER MANHOLE	S	CONCRETE PAD	
DRAIN MANHOLE	D	CONTOUR	58
CURB		SILT FENCE	
WATER VALVE	WV	RIP RAP	
CONTOUR	58	WATER	H2O
SEWER LINE	S	UNDERGROUND TELEPHONE AND ELECTRICITY	UGE+T
STORM DRAIN LINE	SD	STONE CHECK DAM	
PROPERTY LINE		EROSION CONTROL MATTING	
FEMA SETBACK		CREATED WETLAND	
WETLAND			

GRAPHIC SCALE
0 20' 40' 80' 160'

CITY OF PORTLAND: SITE PLAN SUBMISSION

MOIR & EREDIN
Landscape Architects, Inc.
18 Pleasant Street, Portland, Maine 04101
ph: 1.207.871.9003
fax: 1.207.871.1419

APPLICANT:
Rio-Tierra, LLC
655 Riverside Street
Portland, Maine 04103
p. 207.878.2024
f. 207.8782085

LOT 6 -- McALLISTER FARM SUBDIVISION

McALLISTER FARM DRIVE
PORTLAND, MAINE

Title:
Grading, Drainage, Erosion Control Plan

No.	Date	Revision
1	3.3.05	PUR DUP COMMENTS
2	4.12.05	P.B. WORKSHOP
3	4.26.05	Site Plan Submission
4	5.6.05	Per Peer Review

Job # 566
Date: 18 Jan. 05
Scale: 1" = 40'
Drawn: MK
Checked:
Dwg. No. L3.0

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EROSION AND SEDIMENTATION CONTROL PLAN

INTRODUCTION

The following plan for controlling sedimentation and erosion in this project is based on conservation practices found in the Maine Erosion & Sediment Control BMPS Manual, Maine Department of Environmental Protection, March 2003, or latest edition. The contractor who implements this plan shall be familiar with this publication and adhere to it and the practices presented herein.

The project site is located at Lot 6, McAlister Farm Drive in Portland, Maine. The property is 12.6 acres in size and proposed development on the site consists of an entry drive, parking for 55 cars, and one 10,000 square foot office and warehouse facility.

The portion of the site to be developed consists of approximately 4 acres, and is adjacent to the southern shore of the Presumpscot River. Slopes range 1% to 3% in the portion of the site to be developed, with steeper slopes (15% to 30%) adjacent to the river. Soils on-site are mapped as Scantic by the SCS Medium Intensity Soils Survey for Cumberland County.

Reference is made to the erosion control plan (L3.0), showing the locations and types of proposed erosion control measures contained in this report.

GENERAL EROSION AND SEDIMENTATION CONTROL PRACTICES

The following is a list of general erosion control practices that will be used to prevent erosion and sedimentation before, during and after the construction of this project. In addition, special care shall be used at all times to:

1. Limit disturbance and, hence, erosion,
2. Correct any erosion problems immediately,
3. Regularly monitor the implemented practices, especially after every rainfall,
4. Revegetate disturbed areas as soon as possible after construction.

Stone-Check Dams

Stone check dams will be installed as shown on the plans. These check dams reduce flow velocities in swales and serve to filter and capture sediment before traveling downstream.

Swales (Vegetated Drainageway)

Grass-line swales will collect runoff from the site. To supplement grass-lines swales in steeper areas, or where there is high discharge or sediment load potential, either rip-rap or soft armour lining will be used to supplement the vegetation. Rip-rap will provide a higher level of filtration and will slow the flow.

Level Lip Spreaders

Level spreaders will be used to collect runoff from swales and convert it to sheet flow across existing vegetated areas. The level lip will be at existing undisturbed grade and will be reinforced with either rip-rap or soft armour matting.

Haybales and or Silt Fence

As noted on the plans, haybales and/or silt fencing is installed at the toe of slopes near wetlands, below any dike construction (out of receiving channels) along the more expansive fill slopes, and at the toe of cleared slopes.

Construction Entrance

A crushed stone construction entrance shall be installed where the construction equipment will be entering the site. The location and details for the entrance are noted on the plans.

CONSTRUCTION PHASE

The following general practices will be implemented to prevent erosion during construction on this project:

1. Only those areas under active construction will be cleared and left in an untreated or unvegetated condition. Once construction of an area is complete, final grading, loaming and seeding shall occur immediately (refer to "Post Construction Revegetation" section). If final grading, loaming and seeding can not occur immediately, it shall be done prior to any storm event and within 15 days of completing construction in the area (within 7 days at stream crossings). If final grading, loaming and seeding cannot occur within 15 days, or if the area is not under active construction for a period longer than 15 days, see Item No. 5 below.

2. Prior to the start of construction in a specific area, silt fencing and or haybales will be installed as shown on the plans, at the toe of slope and in areas as located on the plans to protect against any construction related erosion. Immediately following construction of swales, additional stone check dams shall be installed, as shown on the plans.

3. Topsoil will be stockpiled when necessary in areas which have minimum potential for erosion and will be kept as far as possible from existing drainage areas and wetlands. All stockpiles expected to remain longer than 15 days shall be :

   A. Treated with anchored mulch (within 5 days of the last deposit of stockpiled soil).

   B. Seeded with conservation mix and mulched immediately.

Stockpiles expected to remain longer than 3 days shall be encircled with haybales or silt fence at the toe of the pile.

4. All disturbed areas expected to remain longer than 15 days shall be:

   A. Treated with straw at a rate of 70-90 lbs. per 1000 square feet from 4/14 to 10/1, or at a rate of 150-200 lbs. per 1000 square feet from 10/1 to 4/15.

   B. Seeded with conservation mix of perennial rye grass (1.0 lbs/1000 sq.ft.) and mulched immediately.

   C. Monitored every two weeks until seeding can occur and remulched as needed to protect slopes.

5. All grading will be held to a maximum 3:1 slope where practical, except as shown on the plan. Greater slopes may be used where the banks are protected with soft armour matting, erosion control matting, or riprap. All slopes will be stabilized with permanent seeding immediately after final grading is complete. (It is understood that immediately means within 5 days of the completion of work. See Post-Construction revegetation for seeding specification.)

6. Swales will be rock lined or soft armour matted where excessive flows or velocities might occur. The locations of these swales are noted on the plans.

7. Construction traffic will be directed over the construction entrance and existing and proposed driveway. Any areas subject to rutting will be stabilized immediately. The crushed stone construction entrance shall be maintained by the addition of more crushed stone as needed as the voids become filled.

POST CONSTRUCTION REVEGETATION

The following general practices will be implemented to prevent erosion as soon as an area is ready to undergo final grading:

1. A minimum of 4" of loam will be spread over disturbed areas and graded to a uniform depth and natural appearance.

2. If final grading is accomplished during the normal growing season (4/15 to 10/1), permanent seeding will be done as specified below. Prior to seeding, limestone shall be applied at a rate of 100 lbs/1000 sq. ft. and 10:20:20 fertilizer at a rate of 18.4 lbs/1000 sq. ft. will be applied. Broadcast seeding at the following rates:

   White Clover 0.46 lbs/1000 sf
   Sheep Fescue 0.80 lbs/1000 sf
   Annual Ryegrass 0.69 lbs/1000 sf

If permanent seeding areas that have received winter mulching, the top two inches of winter mulching should be removed.

3. An area shall be mulched immediately after it has been seeded. Mulching shall consist of hay mulch, hydro-mulch or any suitable substitute deemed acceptable by the Design Professional.

   A. Hay mulch shall be applied at the rate of 2 tons per acre. Hay mulch shall be secured by one of the following:
   Drive over with tracked construction equipment on grades of 5% and less.
   Blanket with tacked photodegradable/biodegradable netting on grades greater than 5%.

   B. Hydro-mulch shall consist of a mixture of asphalt, wood fibre or paper fibre and water which is sprayed over a seeded area. Hydro-mulch shall not be used between 10/1 and 4/15.

4. Construction shall be planned to eliminate the need for seeding between October 1st and April 15th. Should construction be necessary between these dates, following the WINTER CONSTRUCTION erosion control plan and standards as outlined below.

5. Where erosion control netting is called for in swales, the swale may be either:

   A. Seeded, mulched, and blanketed with photodegrable/biodegradable netting.

   B. Seeded and blanketed with netting containing excelsior, or with soft armour matting as noted on the plans.

All netting shall be anchored as per the Manufacturer's specs.

6. Following final seeding, the site will be inspected every 30 days until 80% cover has been established. Reseeding will be carried out by the contractor within 10 days of notification by the design professional that the existing catch is inadequate.

MONITORING SCHEDULE

The contractor shall be responsible for installing, monitoring, maintaining, repairing, replacing and removing all of the erosion and sedimentation controls or appointing a qualified subcontractor to do so.

Maintenance measures will be applied as needed during the entire construction cycle. Immediately following any significant rainfall, and at least once a week, a visual inspection will be made of all erosion and sedimentation controls as follows:

1. Haybale barriers and silt fence shall be inspected and repaired. Sediment trapped behind these barriers shall be excavated when it reaches a depth of 6" and redistributed to areas undergoing final grading. Should the haybale barriers prove to be ineffective, the contractor shall install silt fence behind the haybales.

2. Stone check dams and level lip spreaders shall be visually inspected and repaired as needed. Sediment trapped behind these devices shall be removed once it attains a depth equal to ½ the height of the dam or riser. The sediment removed shall be distributed off-site or to an area undergoing final grading. The sediment and the removal thereof shall be handled in a manner that does not promote erosion or sedimentation.

3. Construction entrance shall be visually inspected and repaired as needed. Any areas subject to rutting shall be stabilized immediately. If the voids of the construction entrance become filled with mud, more crushed stone shall be added as needed. Any mud soil tracked onto the 390-400 common driveway shall be swept immediately and distributed back onto the site.

4. Maintenance of Filtration Basin: All sediment shall be removed from filtration basin at on or around April 1 each spring. After every major storm event, the filtration basin shall be inspected. At that time, eroded and or unstable area of the basin shall be repaired and all sediment shall be removed from the basin. All maintenance of the filtration basin shall conform with the most recent Maine DEP water quality standards and guideline (Chapter 500.)

EROSION CONTROL REMOVAL

An area is considered stable if it is paved or if 80% growth of planted seeds are established. Once an area is considered stable, the erosion control measures can be removed as follows:

1. Haybales and Silt Fence
The haybales and silt fence shall be disposed of legally and properly off-site. All sediment trapped behind these controls shall be distributed to an area undergoing final grading or removed and relocated off-site.

2. Stone Check Dams
The sediment trapped behind/around in stone check dams, shall be removed and relocated off-site or to an area undergoing final grading. The sediment trapped by these devices shall not be regraded locally since they exist in drainage ways. The rip-rap from the check dams and risers may be either:

   A. Removed or,

   B. Regraded in an aesthetic manner, which does not inhibit flow or create erosion.

3. Miscellaneous
Once all the trapped sediments have been removed from the temporary sedimentation devices (stone check dams), the disturbed areas must be regraded in an aesthetic manner to conform to the surrounding topography. Once graded these disturbed areas must be loamed (if necessary), fertilized, seeded and mulched in accordance with the rates previously stated.

The above erosion controls must be removed within 30 days of final stabilization of the site.

Conformance with this plan, and following these practices will result in a project that complies with the State Regulations and the Standards of the Natural Resources Protection Act, and will protect water quality in areas downstream from the project.

WINTER CONSTRUCTION

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75 % mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that no more than 1 acre of the site is without stabilization at my one time. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All area shall be considered to be denuded until the subbase gravel is installed in roadway areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor must install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions.

Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. SOIL STOCKPILES

Stockpiles of soil or subsoil will be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs /1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This will be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile will not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. NATURAL RESOURCES PROTECTION

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75 % mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats.

During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) will be placed between any natural resource and the disturbed area.

Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. SEDIMENT BARRIERS

During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. MULCHING

All area shall be considered to be denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored.

Mulch shall not be spread on top of snow. The snow will be removed down to a one-inch depth or less prior to application.

After each day of final grading, the area will be properly stabilized with anchored hay or straw or erosion control matting.

An area shall be considered to have been stabilized when exposed surfaces has been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by either peg line, mulch netting, asphalt emulsion chemical, track or wood cellulose fiber. When ground surface is not visible though the mulch then cover is sufficient.

After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading work day.

5. MULCHING ON SLOPES AND DITCHES

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets.

Mulching shall be applied at a rate of 230 lbs/1,000 sft on all slopes greater than 8 %.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater that 3 % for slopes exposed to direct winds and for all other slopes greater that 8 %.

Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes 8 %.

Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. SEEDING

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched.

Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples.

If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5lbs/1000 s.f. All areas seeded during the winter will be inspected in the spring for adequate catch. All areas sufficiently vegetated (less than 75 % catch) shall be revegetated by replacing loam, seed and mulch.

If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

7. TRENCH DEWATERING AND TEMPORARY STREAM DIVERSION

Water from construction trench dewatering or temporary stream diversion will pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 100 feet of a protected natural resource.

8. INSPECTION AND MONITORING

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function.

Following the temporary and or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/ or unestablished spots. Established vegetative cover means a minimum of 85 to 90 % of areas vegetated with vigorous growth.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. Standard for the timely stabilization of ditches and channels -- The applicant will construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant will construct and stabilize all grass-lined ditches and channels on the site by September 15. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 15, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant will line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant will line the ditch with stone riprap by November 15. The applicant will hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant will regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant will construct and stabilize stone-covered slopes by November 15. The applicant will seed and mulch all slopes to be vegetated by September 15. The department will consider any area having a grade greater than 15% (10H:1V) to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 15, then the applicant will take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By October 1 the applicant will seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1000 square feet and apply erosion control mats over the mulched slope. The applicant will monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant will cover the slope with a layer of woodwaste compost as described in item iii of this condition or with stone riprap as described in item iv of this condition.

Stabilize the slope with sod -- The applicant will stabilize the disturbed slope with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant will not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant will place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant will remove any snow accumulation on the disturbed slope. The applicant will not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant will place a layer of stone riprap on the slope by November 15. The applicant will hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant will seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant will take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By October 1 the applicant will seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant will monitor growth of the rye over the next 30 days. If the rye fails grow at least three inches or cover at least 75% of the disturbed soil before November 15, then the applicant will mulch the area for over-winter protection as described in item iii of this standard.

Stabilize the soil with sod -- The applicant will stabilize the disturbed soil with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch -- By November 15 the applicant will mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant will remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

MOIR & EREDIN
Landscape Architects, Inc.
18 Pleasant Street, Portland, Maine 04101
ph: 1.207.871.0903
fax: 1.207.871.1419

APPLICANT:
Rio-Tierra, LLC
655 Riverside Street
Portland, Maine 04103
p. 207.878.2024
f. 207.8782085

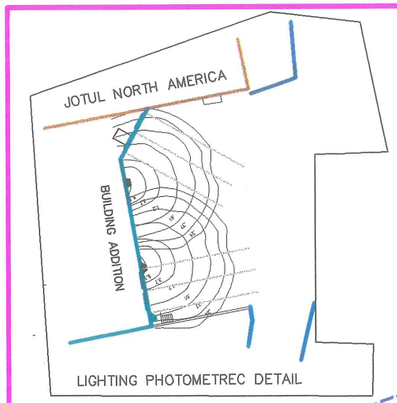
LOT 6 -- McALLISTER FARM SUBDIVISION
McALLISTER FARM DRIVE,
PORTLAND, MAINE

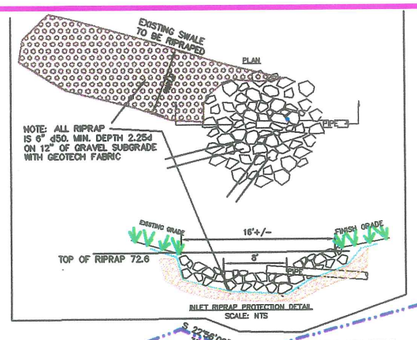
Title:
Erosion Control Notes

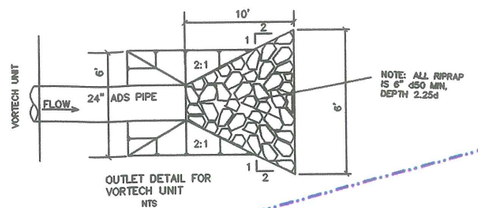
No.	Date	Revision
1	4.26.05	Site Plan Submission
2	5.6.05	Per Peer Review

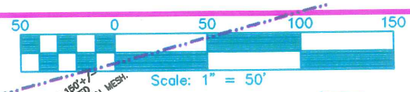
Job # 566 | Dwg. No. L3.1
Date: 18 Jan. 05
Scale: N.T.S.
Drawn: MK
Checked:

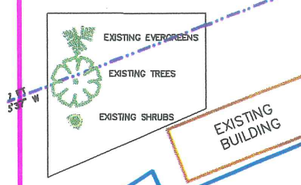
CITY OF PORTLAND: SITE PLAN SUBMISSION





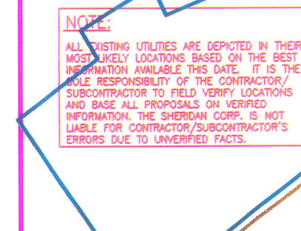






NOTE:

ALL EXISTING UTILITIES ARE DEPICTED IN THEIR MOST LIKELY LOCATIONS BASED ON THE BEST INFORMATION AVAILABLE THIS DATE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR/ SUBCONTRACTOR TO FIELD VERIFY LOCATIONS AND BASE ALL PROPOSALS ON VERIFIED INFORMATION. THE SHERIDAN CORP. IS NOT LIABLE FOR CONTRACTOR/SUBCONTRACTOR'S ERRORS DUE TO UNVERIFIED FACTS.



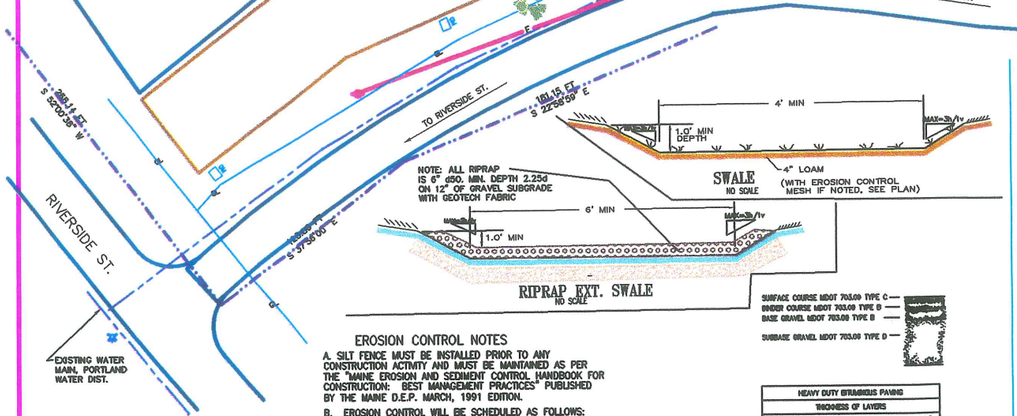
NOTE: EROSION CONTROL DEVICES ARE TEMPORARY TO BE REMOVED AFTER SLOPE STABILIZATION.

EROSION FENCE DETAIL

SCALE = NTS

NOTE:

SUBSURFACE PREPARATION WILL ENTAIL THE REMOVAL OF TOPSOIL, ALL UNSUITABLE MATERIALS, STUMPS, TRASH, ETC. THEN IT WILL BE PROOF ROLLED. STRUCTURAL FILL WILL BE PLACED IN 12" MAX. LIFTS AND COMPACTED TO 95% DRY DENSITY. THIS APPLIES TO ALL BUILDING AREAS AND PAVED AREAS. GRADING OF SUBGRADE SHALL MATCH FINISH GRADE. TOP OF SUBGRADE WILL BE MINUS DEPTH OF ALL SUBBASE, BASE AND FINISH MATERIALS. WITH ALLOWABLE GRADE DEVIATION OF PLUS OR MINUS 1/10 OF ONE FOOT.



EROSION CONTROL NOTES

A. SILT FENCE MUST BE INSTALLED PRIOR TO ANY CONSTRUCTION ACTIVITY AND MUST BE MAINTAINED AS PER THE "MAINE EROSION AND SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES" PUBLISHED BY THE MAINE D.E.P. MARCH, 1991 EDITION.

B. EROSION CONTROL WILL BE SCHEDULED AS FOLLOWS: SILT FENCING WILL BE INSTALLED PRIOR TO COMMENCEMENT OF WORK. ALL AREAS TO BE SEEDED WILL BE TEMPORARILY STABILIZED WITHIN 7 DAYS OF DISTURBANCE. AREAS WILL BE INSPECTED ONCE A WEEK OR AFTER EVERY RAIN/SNOW OF 1/2" OR MORE OF WATER. ALL ERODED AREAS OF THE NEW GRASS WILL BE REPAIRED WITHIN 1 WEEK OF OCCURRENCE, WEATHER PERMITTING. ROUTINE MAINTENANCE WILL CONTINUE UNTIL THE GRASS AREAS ARE WELL ESTABLISHED.

C. DISTURBED AREAS WILL RECEIVE 4" LOAM, LIME AT THE RATE OF 90 LB./1000 S.F. FERTILIZED WITH 11 LB./1000 S.F. OF 10-20-20. SEED WILL BE LOFT SEED COMPANY'S WILD FIELD GRASS MIX AT .25 LB/1000 S.F. WITH HAY MULCH APPLIED AT THE RATE OF 15 LB./1000 S.F. ALL AREAS NOT WELL ESTABLISHED IN 30 DAYS WILL BE RESEEDED AND MULCHED.

D. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTATION, MAINTENANCE AND INSPECTION OF EROSION CONTROL MEASURES UNTIL ALL AREAS ARE WELL ESTABLISHED.

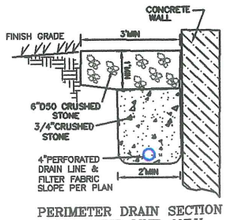
E. WHERE THESE REGULATIONS DIFFER FROM OTHER EROSION/ SEDIMENTATION NOTES, THE MOST STRINGENT SHALL BE USED.

F. PLANT PERMANENT VEGETATION AND INSTALL STRUCTURES AS SOON AS POSSIBLE FOR THE PURPOSE OF SOIL STABILIZATION AND REVEGETATION.

G. CONTACT KEN LAMOREAUX AT THE SHERIDAN CORP., P.O. BOX 359, FAIRFIELD, MAINE (207)453-9311 FOR EROSION ISSUES.

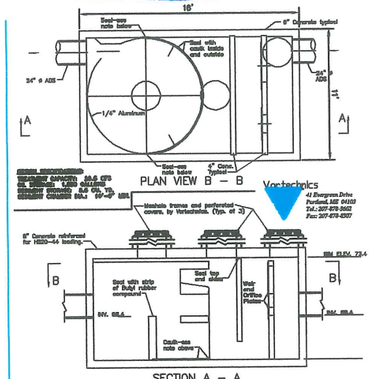
NOTE: ALL EROSION CONTROL MEASURES, SILT FENCES– STONE CHECK DAMS–HAY BALES–ECT., ARE TO BE REMOVED AFTER VEGETATION IS WELL ESTABLISHED AND WILL NO LONGER BE EASILY SUSCEPTIBLE TO EROSION.

HEAVY DUTY BITUMINOUS PAVING	
THICKNESS OF LAYERS	
SURFACE COURSE MDOT 703.09 TYPE C	1 1/2"
BINDER COURSE MDOT 703.09 TYPE B	2 1/2"
BASE GRAVEL MDOT 703.06 TYPE B	3"
SUBBASE GRAVEL MDOT 703.06 TYPE D	10"



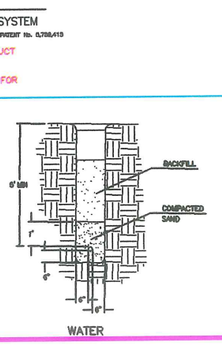
PERIMETER DRAIN SECTION ROOF DRIP LINE ONLY

NTS



STORMWATER TREATMENT SYSTEM
VORTECHS™ MODEL #11500 U.S. PATENT No. 6,758,419

THIS TYPICAL DETAIL IS FOR PRODUCT REFFERENCE ONLY. ACTUAL UNIT WILL BE MODEL 11500, 11'x16', AND MEET WILL ALL REQUIREMENTS FOR WATER QUALITY FOR THIS SITE.



PERIMETER DRAIN SECTION

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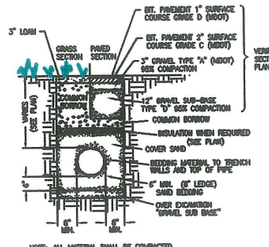
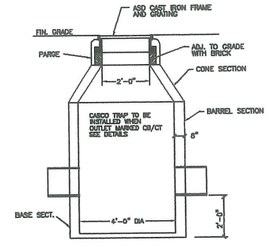


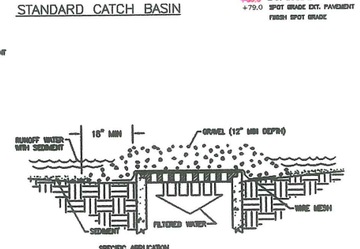
NOTE: ALL MATERIAL SHALL BE COMPACTED TO 95% OF THE MAXIMUM PROCTOR DENSITY (MODIFIED)

TYPICAL STORMWATER/CULVERT TRENCH SECTION

NTS



STANDARD CATCH BASIN



SEDIMENT APPLICATION

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

GRAVEL AND WIRE MESH DROP INLET SEDIMENT FILTER (VIRGINIA SWCC)

LEGEND:

- IRON ROD
- GRANITE MONUMENT
- UTILITY POLE
- GUY ANCHOR
- HYDRANT
- WATER VALVE
- GAS LINE
- GAS METER
- WALL MOUNTED LIGHT
- NEW LIGHT ON POLE
- LIGHT POLE
- CATCH BASIN
- SANITARY MANHOLE
- DRAINAGE MANHOLE
- EXISTING CONTOUR
- FINISH CONTOUR
- ELECTRIC UNDERGROUND
- ELECTRIC OVERHEAD
- PROPERTY LINE
- EROSION FENCE
- HAY BALES
- EXISTING CONC. CURB
- EXT.EDGE OF PAVEMENT
- +82.3 SPOT GRADE EXT. TOP OF WALL
- +79.0 SPOT GRADE EXT. PAVEMENT
- FINISH SPOT GRADE

DATE	REVISION	EST. NO
10/2/06	ADD CATCH BASIN, PIPE, VORTECH UNIT & MISC. DETAILS	
9/15/06	ADD FIRE LANE PER CITY FIRE DEPT.	
9/15/06	NEW PERIMETER DRAIN DETAIL.	

SIZE
TYPE
DRAWN BY KSL
APPROVED BY KSL
SCALE SEE BAR
DATE 8/25/06
AUTOCAD FILE NAME SD-1

Engineering Designs For
RIVERSIDE PROPERTIES
400 RIVERSIDE STREET
PORTLAND, MAINE

Title
CONSTRUCTION DETAILS
UTILITIES & EROSION CONTROL
JOTUL BUILDING ADDITION

JOB NO. 9609
ENGINEERING DWG. NO. SD-3

DESIGN BUILDER

SHERIDAN CORP.
FAIRFIELD
PORTLAND
MAINE